WSBC-Q450

PICMG1.0 Full-Size SBC

User Manual

Rev.01, Jul. 2011

Statement

All rights reserved. No part of this publication may be reproduced in any form or by any means, without prior written permission of the publisher.

All trademarks are the properties of the respective owners.

All product specifications are subject to change without prior notice

Packing List

- ☐ WSBC-Q450
- ☐ Driver CD (Include user's manual)

Ordering Information

- ☐ 1 x PS2 Y Cable(KB and Mouse)
- ☐ 1 x LPT Cable with Bracket
- ☐ 1 x 2 Port COM Cable with Bracket
- ☐ 1 x 2 Port USB Cable with Bracket
- ☐ 1 x SATA Cable

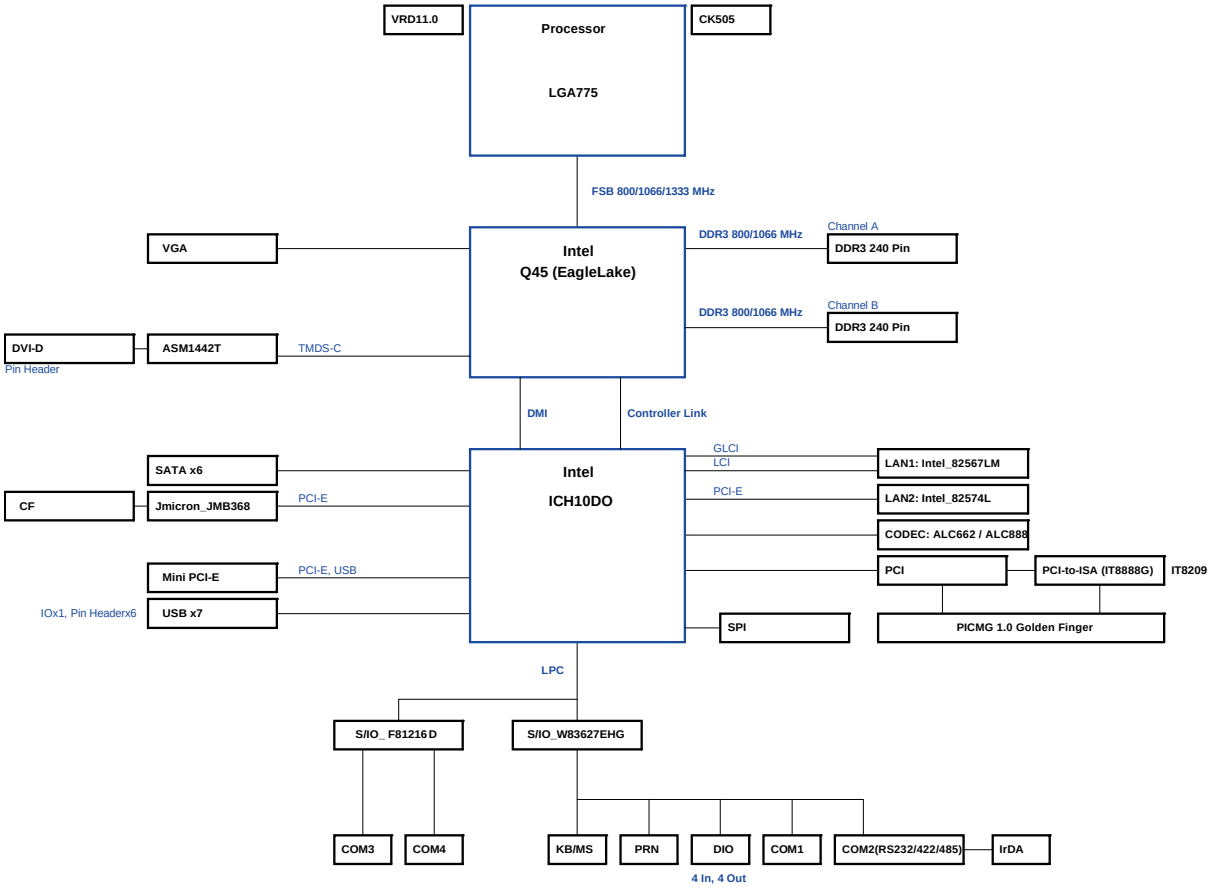
Contents

Chapter 1 Product Information....4
1.1 Block Diagram....4
1.2 Features....5
1.3 PCB Layout....7
1.4 Jumper Setting....9
1.5 Connector Function List....12
1.6 Internal Connector Pin Define....13
Chapter 2 BIOS Setup....19
2.1 Main Menu....19
2.2 Standard CMOS Features....20
2.3 Advanced BIOS Features....21
2.4 Advanced Chipset Features....23
2.5 Integrated Peripherals....24
2.6 Power Management Setup....32
2.7 PnP/PCI Configurations....34
2.8 PC Health Status....35
2.9 Frequency/Voltage Control....36
2.10 Load Fail-Safe Defaults....37
2.11 Load Optimized Defaults....38
2.12 Set Supervisor Password....39
2.13 Set User Password....40
2.14 Save & Exit Setup....41
2.15 Exit Without Saving....42
Chapter 3 Drivers Installation....43
3.1 Intel Chipset Device Software....43
3.2 Net Framework....46
3.3 Intel Graphic Media Accelerator Driver....47
3.4 LAN Driver....53
3.5 Audio Driver....53
Appendix-A Watchdog....54
Appendix-B GPIO....56

Chapter 1 Product Information

This chapter introduces the product features, jumper and connector information.

1.1 Block Diagram

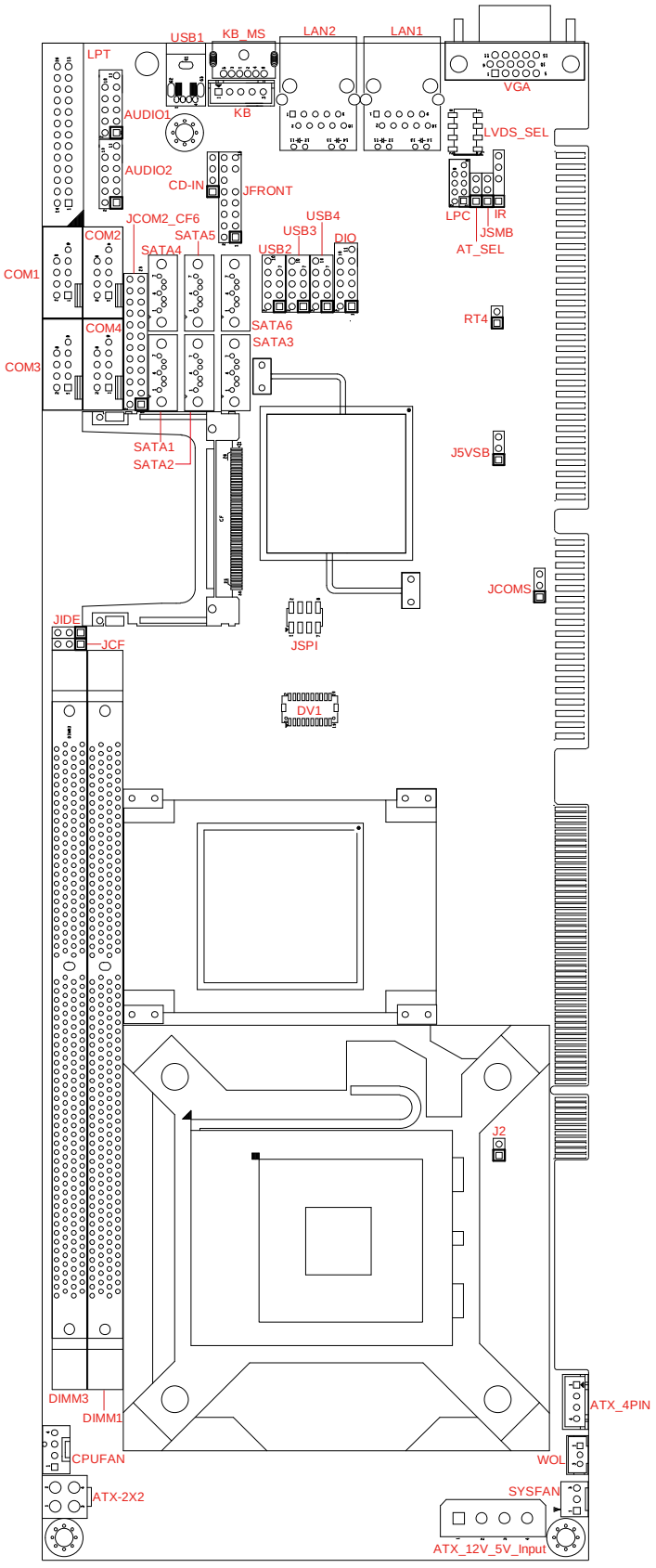


Features

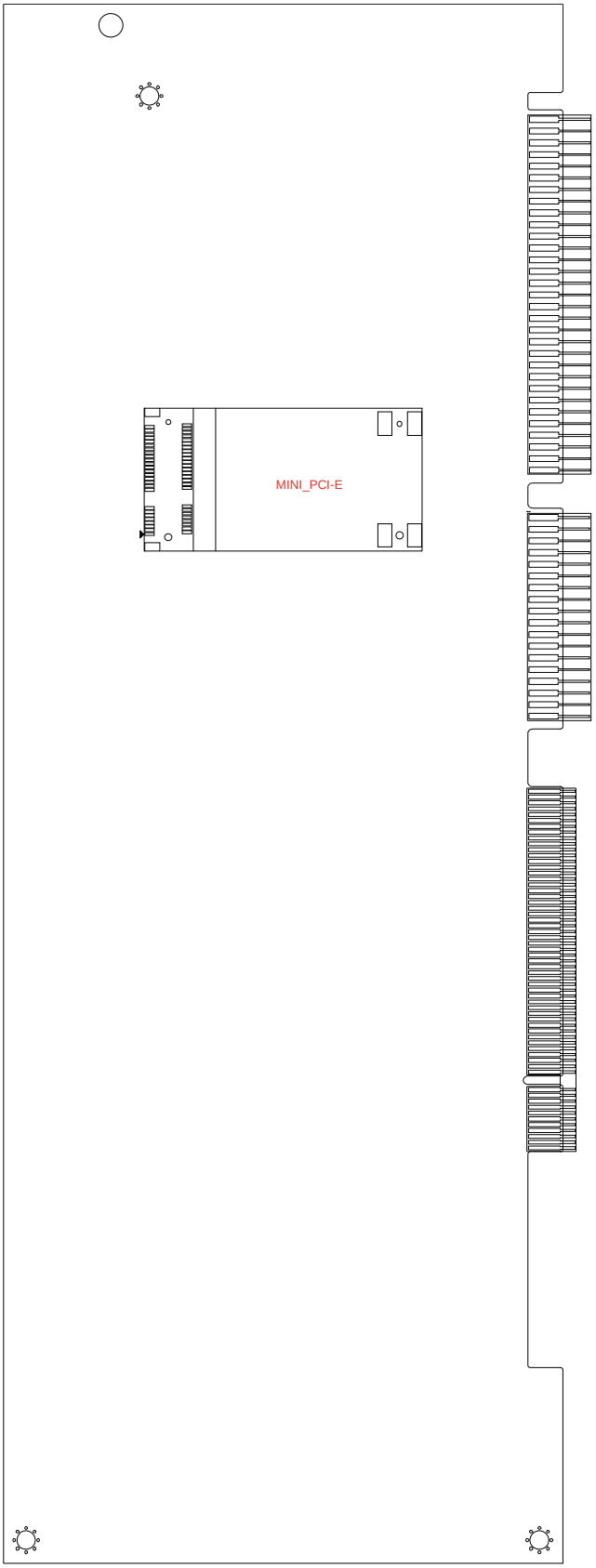
SystemProcessor/ Chipsets	Processor	Intel® Core 2 Quad /Core 2 Duo/Dual-Core
		LGA 775
	FSB	800MHz/1066MHz/1333MHz
	Chipset	Intel® Q45+ICH10DO
	BIOS	Award
Memory	Technology	Dual channel DDR3 800MHz/1066 MHz
	Max. Capacity	Up to 8GB DDR3 DRAM
	Socket	2 x 240Pin DIMM
Display	Chipset	Intel® Q45 GMCH integrated graphic device(GMA4500)
	VRAM	Shared system memory up to 1GB
	Resolution	Analog Display: Up to 2048 x 1536
	Dual Display	CRT+DVI
Ethernet	Interface	Dual 10/100/1000 Mbps
	Controller	LAN1: Intel 82567LM, LAN2: Intel 82574L
Audio	Interface	High Definition Audio.
	Controller	Realtek ALC662 HD CODEC
SATA	Max.Data Transfer Rates	300 MB/s
	Port	6
Expansion Slot	PCI	4
	ISA	1
Onboard Pin-Header	mini-PCIe	1 (PCIe x1)
	USB 2.0	6
	COM	4 (3xRS-232, 1x RS-232/422/485)
	Parallel	1
	Compact Flash	1
	Front Panel	1
	DVI	1

	Audio Header	1(Lin In, Lin out , Mic In)
	DIO	4 in/ 4 out
Rear I/O	**PS/2**	1 (K/B and Mouse)
	VGA	1
	LAN	2x RJ45
	USB 2.0	1
Power	**AT**	1
	ATX	1
Watchdog Timer	**Interval**	Programmable 1~255 sec./min.
	Output	System reset
Environment *Note1	**Operating Temp.**	-5°C~ 60°C (23°F~ 140°F)
	Storage Temp.	-20°C~ 80°C (-68°F~ 176°F)
	Relative Humidity	0%~ 95% (non-condensing)
Form Factor	**Dimension (L*W)**	PICMG 1.0 Full-Size SBC, 338mm x 122mm (13.31” x 4.8”)

PCB Layout – Top View

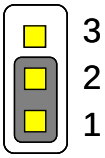
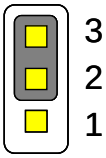


PCB Layout – Bottom View

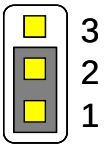
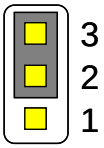


Jumper Setting

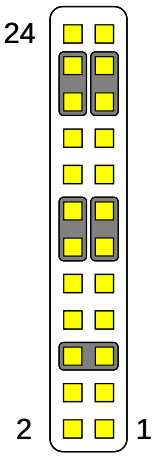
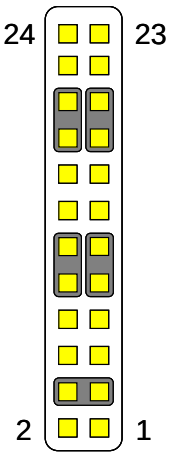
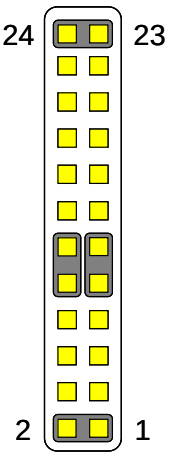
JCF: Compact Flash (Master / Slave) Select

Pin No.	1-2	2-3
Function	Master	Slave (Default)
Jumper Setting		

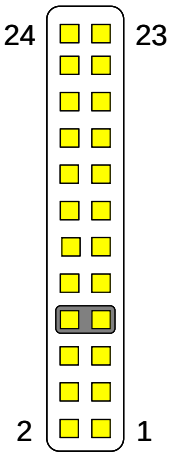
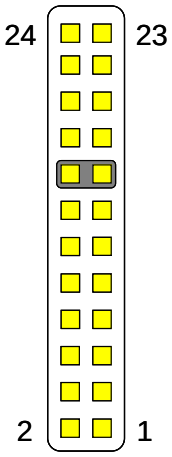
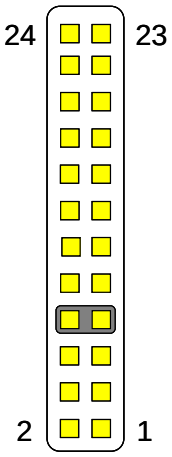
JCMOS1: CMOS Clear

Pin No.	1-2	2-3
Function	Normal Operation (Default)	Clear CMOS Contents
Jumper Setting		

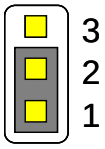
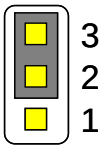
JCOM2_CFG：COM2 (RS-232/RS-422/RS-485) Select (1/2)

Pin No.	5-6, 11-13, 12-14, 19-21, 20-22	3-4, 9-11, 10-12, 17-19, 18-20	1-2, 9-11, 10-12, 23-24
Function	RS-232 (Default)	RS-422	RS-485
umper Setting			

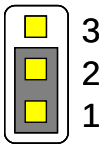
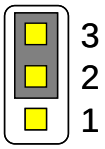
JCOM2_CFG：COM2 (RS-232/RS-422/RS-485) Select (2/2)

Pin No.	7-8 (Not recommended)	15-16	7-8
Function	RS422 TXD Pair 100Ohm Termination	RS422 RXD Pair 100Ohm Termination	RS485 Data Pair 100Ohm Termination
Jumper Setting			

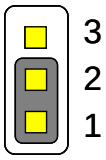
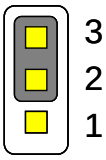
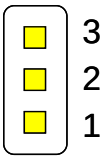
AT_SEL: AT / ATX Mode Select

Pin No.	1-2	2-3
Function	AT Mode	ATX Mode (Default)
Jumper Setting		

J5VSB: 5V connector to 5VSB Select

Pin No.	1-2	2-3
Function	5V connect to 5VSB	5V not connect to 5VSB (Default)
Jumper Setting		

JIDE: IDE ATA Mode Select

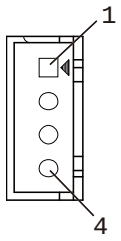
Pin No.	1-2	2-3	All Open
Function	Max. UDMA Mode 1 (33MHz)	Auto Detect UDMA Mode (Default)	Min. UDMA Mode 2 (66MHz)
Jumper Setting			

Connector Function List

Connector	Function	Note
ATX_4Pin	+5VSB, PSON,GND signal , connect to BP	
Audio1	Line-In/MIC-In/Line-Out Connectors	
Audio2	Surround-Out/Center-Out Connectors	
CPUFAN	CPU Fan 4Pin Connector	
SYSFAN	System FAN connector	
COM 1/2/3/4	Serial Port Connectors	
DIO	Digital I/O Connector	
DVI	Digital Video Interface Connector wirh Box-header	
JFRONT	Front Panel Connector	
JSPI	SPI BIOS tool reflash function	
LAN1/2	RJ45 LAN Connector	
LPC	Reserved for debug	
LPT	Parallel Port Connectors	
KB	External Keyboard Connector	
KB_MS	PS2 Keyboard & Mouse Connector	
WOL	PCI card wake-on LAN signal	
PWR	ATX 2x2 connector	
PWR4P	Power input for Single Board function	
SATA1, 2, 3. 4,5,6	SATA Connector	
DIMM1, 2	DDR3 DIMM connector	
USB1	USB1 Port Connectors	
USB2, 3, 4	USB2/3/4 Port pin header.	

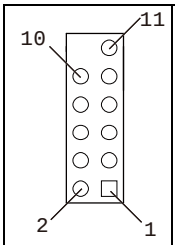
Internal Connector Pin Define

ATX_4Pin: ATX_4Pin Connector with Wafer-header (2.5mm)



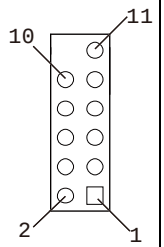
Pin No.	Signal
1	ATX_Power OK
2	+5VSB
3	PS_ON-
4	Ground

AUDIO1: Line-In/MIC-In/Line-Out Connector with Pin-header (2.54mm)



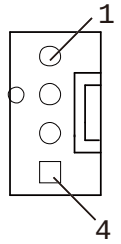
Pin No.	Signal	Pin No.	Signal
1	Line-In-L	2	Line-In Jack Detect
3	Line-In-R	4	MIC-In Jack Detect
5	MIC-In-L	6	Line-Out Jack Detect
7	MIC-In-R	8	Audio Ground
9	Line-Out-L	10	Audio Ground
11	Line-Out-R	12	NC

AUDIO2: Surround-Out/Center-Out Connectors with Pin-header (2.54mm)



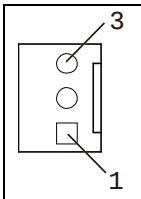
Pin No.	Signal	Pin No.	Signal
1	SURR-Out-L	2	SURR-Out Jack Detect
3	SURR-Out-R	4	CEN-Out Jack Detect
5	CEN-Out	6	Audio Ground
7	LEF-Out	8	Audio Ground
9	SPDIF-Out	10	Ground
11	+5V	12	NC

CPUFAN： 4Pin FAN Connector



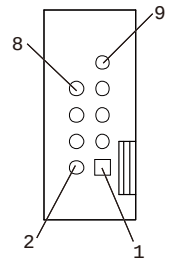
Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense
4	Control

SYSFAN: System FAN connector



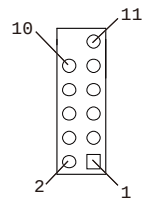
Pin No.	Signal
1	Sense
2	+12V
3	Ground

COM1/COM2/COM3/COM4: Serial Port with Box-header (2.54mm)



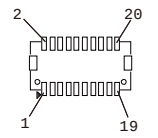
Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI/+5V/+12V
9	Ground	10	NC

DIO: Digital I/O Connector with Pin-header (2.54mm)



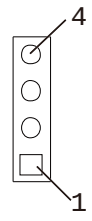
Pin No.	Signal	Pin No.	Signal
1	DIO-Out0	2	DIO-In0
3	DIO-Out1	4	DIO-In1
5	DIO-Out2	6	DIO-In2
7	DIO-Out3	8	DIO-In3
9	+12V	10	+5V
11	Ground	12	NC

DVI: Digital Video Interface with Box-header (1.0 mm)



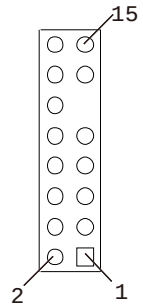
Pin No.	Signal	Pin No.	Signal
1	HDMI_TX0+	2	HDMI_TXC+
3	HDMI_TX0-	4	HDMI_TXC-
5	Ground	6	Ground
7	HDMI_TX1+	8	L_DDC_SC
9	HDMI_TX1-	10	L_DDC_SD
11	Ground	12	Ground
13	HDMI_TX2+	14	HDMI_HPD
15	HDMI_TX2-	16	DVI_5V
17	Ground	18	Ground
19	Ground	20	Ground

CD-IN：CD-IN Connector with Wafer-header (2.5mm)



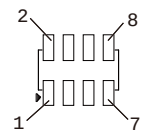
Pin No.	Signal
1	CD-L
2	CD-G
3	CD-G
4	CD-R

JFRONT: Front Panel Connector with Pin-header (2.54mm)



Pin No.	Signal	Pin No.	Signal
1	+5V (470 Ohm)	2	+5V (470 Ohm)
3	NC	4	HDD LED
5	Ground	6	5VSB (470 Ohm)
7	Reset Switch	8	Suspend LED
9	Ground	10	Speaker
11	NC	12	NC
13	Power Switch	14	NC
15	Ground	16	+5V

JSPI: Serial Peripheral Interface Connector (2.0mm)



Pin No.	Signal	Pin No.	Signal
1	SPI_CS#0_R	2	+3.3V
3	SPI_SO_R	4	SPI_HOLD#
5	NC	6	SPI_CLK_R
7	Ground	8	SPI_SI_R

LPT：Parallel Port Connector with Box-header (2.54mm)

Pin No.	Signal	Pin No.	Signal
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialization#
4	Data 2	17	Printer Select IN#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Acknowledge#	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	Ground

KB：External Keyboard Connector with Wafer-header (2.5mm)

Pin No.	Signal
1	KBCLK
2	KBDATA
3	NC
4	Ground
5	+5V

KB_MS：PS2 Keyboard & Mouse with Mini-DIN Connector

Pin No.	Signal	Pin No.	Signal
1	KBDATA	2	MSDATA
3	Ground	4	+5V
5	KBCLK	6	MSCLK

WOL: PCI card wake-on LAN signal (2.0mm)

Pin No.	Signal
1	+5V
2	Ground
3	PCI_PME#

PWR：ATX 2x2 Power Connector (4.2mm)

Pin No.	Signal
1	Ground
2	Ground
3	+12V DC-In
4	+12V DC-In

ATX_12V_5V_Inpput: Power input for Single Board function (4.2mm)

Pin No.	Signal
1	+5V
2	Ground
3	Ground
4	+12V

USB1：USB1 for IO connector

Pin No.	Signal
1	USB Power (+5V)
2	USB DATA0-
3	USB DATA0+
4	USB Ground

USB2/3/4: USB2/3/4 Port Connector with Wafer-header (2.5mm)

Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA-	4	USB DATA-
5	USB DATA+	6	USB DATA+
7	USB Ground	8	USB Ground
9	NC	10	Case Ground

ATX_4Pin: ATX_4Pin Connector with Wafer-header (2.5mm)

Pin No.	Signal
1	ATX_Power OK
2	+5VSB
3	PS_ON-
4	Ground

IR: IR Connector with Wafer-header (2.5mm)

Pin No.	Signal
1	+5V
2	NC
3	SINB
4	Ground
5	SOUTB

LPC: LPC Connector with Wafer-header (2.0mm)

Pin No.	Signal
1	LAD0
2	PLTRST-
3	LAD1
4	LFRAME#
5	LAD2
6	+3.3V
7	LAD3
8	Ground
9	CLK_LPC3_33M
10	NC

Chapter 2 BIOS Setup

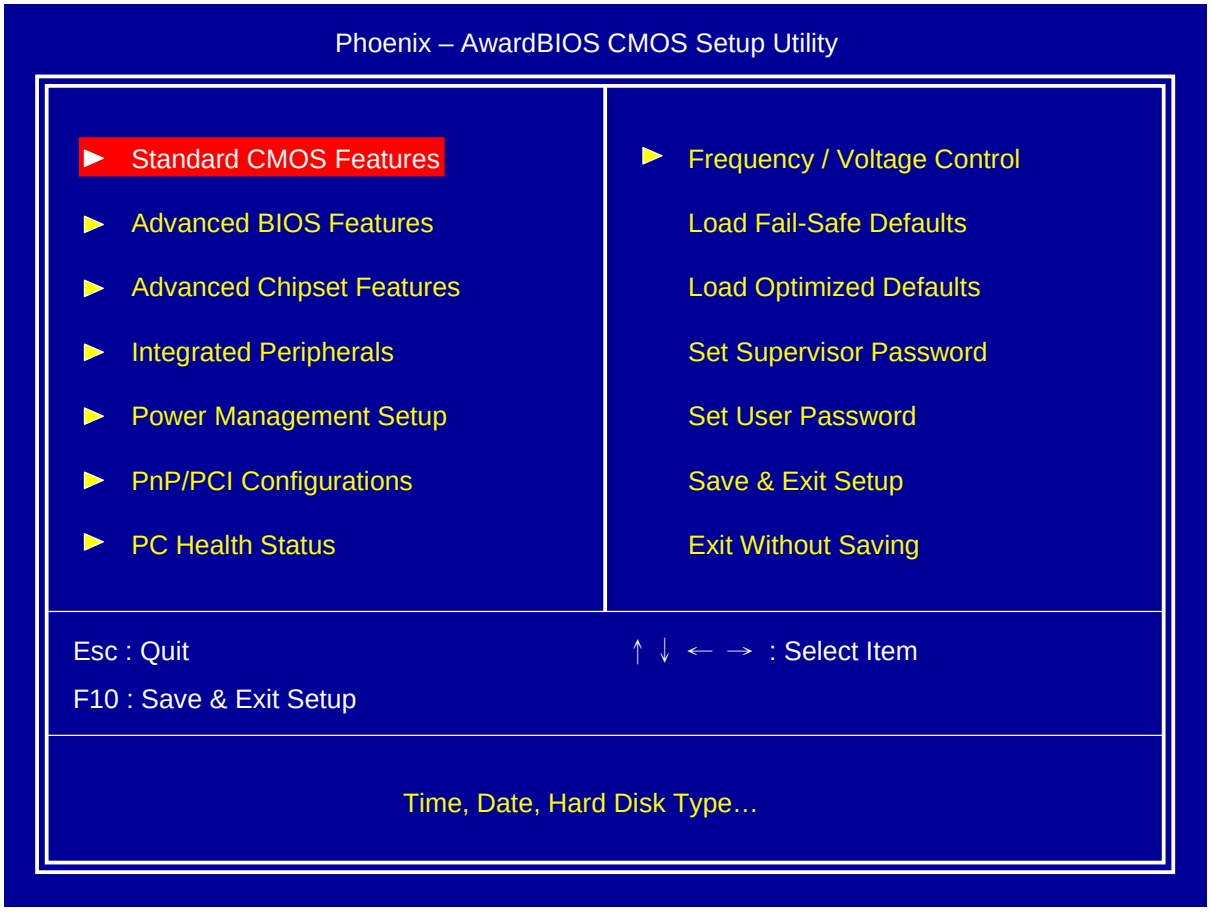
This chapter introduces BIOS setup information.

Power on or reboot the system board, when screen appears message as “Press DEL to enter SETUP“. Press <DEL> key to run BIOS SETUP Utility.

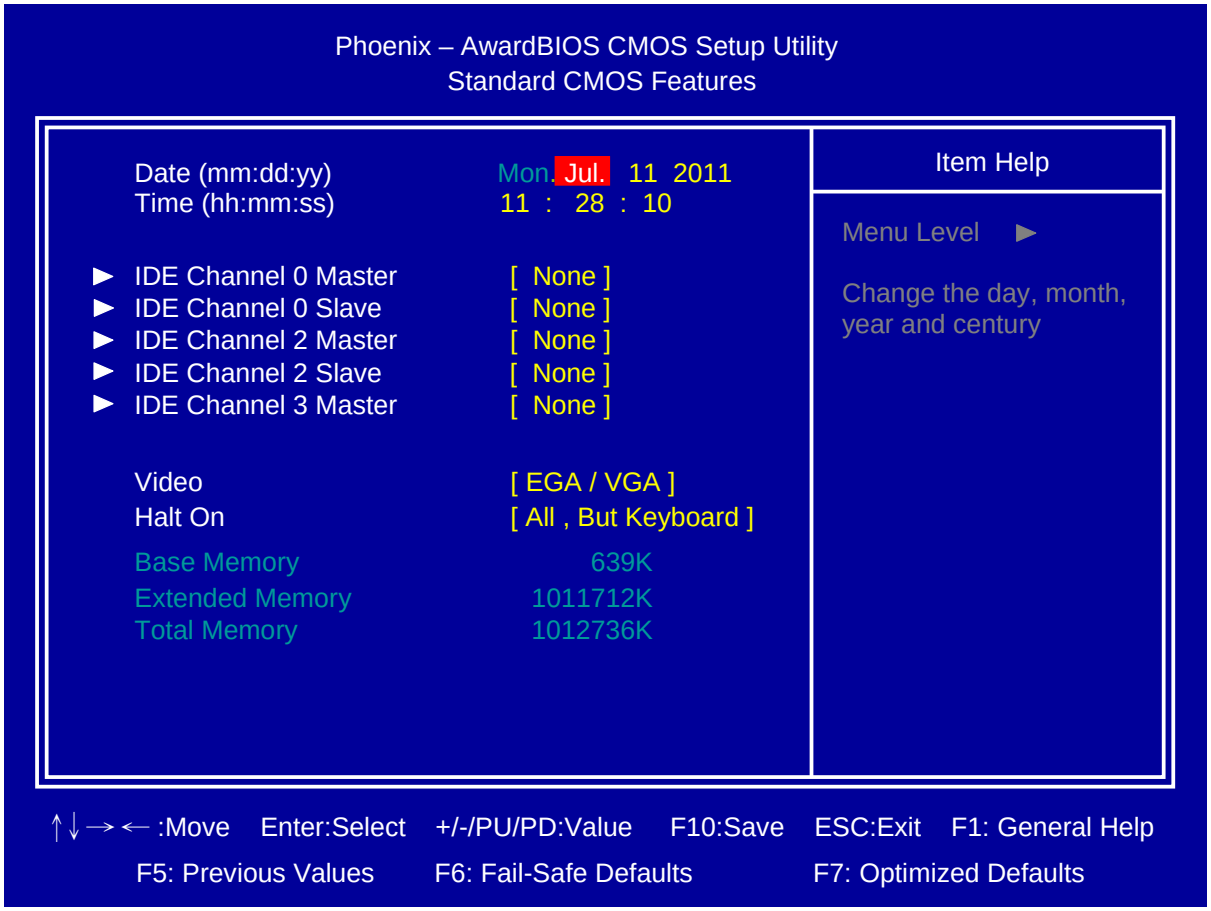
Note: The BIOS configuration for reference only, it may subject to change without prior notice.

2.1 Main Menu

Please use arrow keys to select item, then press <Enter> key to accept or enter the sub-menu.



2.2 Standard CMOS Features


Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Mon. Jul. 11 2011
Time (hh:mm:ss) 11 : 28 : 10
IDE Channel 0 Master [None]
IDE Channel 0 Slave [None]
IDE Channel 2 Master [None]
IDE Channel 2 Slave [None]
IDE Channel 3 Master [None]
Video [EGA / VGA]
Halt On [All , But Keyboard]
Base Memory 639K
Extended Memory 1011712K
Total Memory 1012736K
Item Help
Menu Level ►
Change the day, month, year and century
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ **Date**

Set system date.

☐ **Time**

Set system time.

☐ **IDE Channel 0 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 2 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 3 Master**

Press <Enter> for IDE device automatic detection.

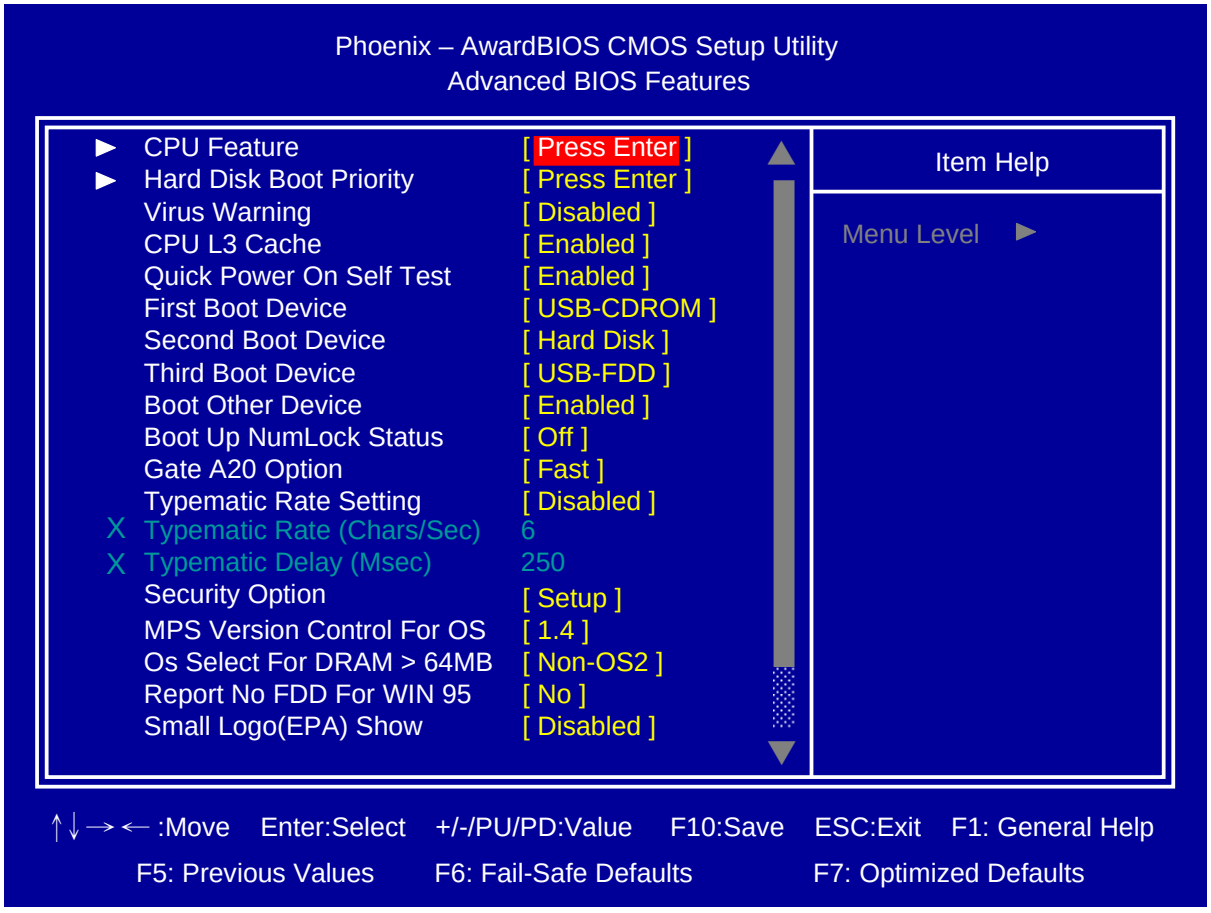
☐ **Video**

Select Video device type.

☐ **Halt on**

Select stop procedure or ignore when error detected during POST (Power On Self Test).

2.3 Advanced BIOS Features


Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Features
CPU Feature [Press Enter]
Hard Disk Boot Priority [Press Enter]
Virus Warning [Disabled]
CPU L3 Cache [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [USB-CDROM]
Second Boot Device [Hard Disk]
Third Boot Device [USB-FDD]
Boot Other Device [Enabled]
Boot Up NumLock Status [Off]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
X Typematic Rate (Chars/Sec) 6
X Typematic Delay (Msec) 250
Security Option [Setup]
MPS Version Control For OS [1.4]
Os Select For DRAM > 64MB [Non-OS2]
Report No FDD For WIN 95 [No]
Small Logo(EPA) Show [Disabled]
Item Help
Menu Level
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ CPU Feature

Press <Enter> to select CPU parameter.

☐ Hard Disk Boot Priority

Press <Enter> to select Hard Disk boot device priority.

☐ Virus Warning

Select “Virus Warning” Enabled/Disabled.

☐ CPU L3 Cache

Select “CPU L3 Cache” Enabled/Disabled.

☐ Quick Power On Self Test

Select “Quick Power On Self Test” Enabled/Disabled.

☐ First/Second/Third Boot Device

Select boot device priority.

☐ Boot Other Device

Select “Boot Other Device” Enabled/Disabled.

☐ **Boot Up NumLock Status**

Select <NumLock> key ON/Off when system boot up.

☐ **Gate A20 Option**

Select Gate A20 controlled by Keyboard controller (Normal) or Port 92 (Fast).

☐ **Typematic Rate Setting**

Select “Typematic Rate Setting” Enabled to set,
Typematic Rate (Chars/Sec): Number of characters repeated in one second.
Typematic Delay (Msec): When holding one key, set the time between the first and second character displayed.

☐ **Security Option**

Select security mode,
Setup: Require password to permit BIOS setup utility.
System: Require password to permit boot-up and BIOS setup utility.

☐ **MPS Version Control For OS**

Select MPS (Multiprocessor Specification) Version 1.4 to added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Select Version 1.1 for older Operating Systems.

☐ **OS Select For DRAM > 64M**

Select “OS2” only if you are running older version of IBM OS/2 Operating System with greater than 64MB of RAM on the system. Otherwise select “Non-OS/2” setting.

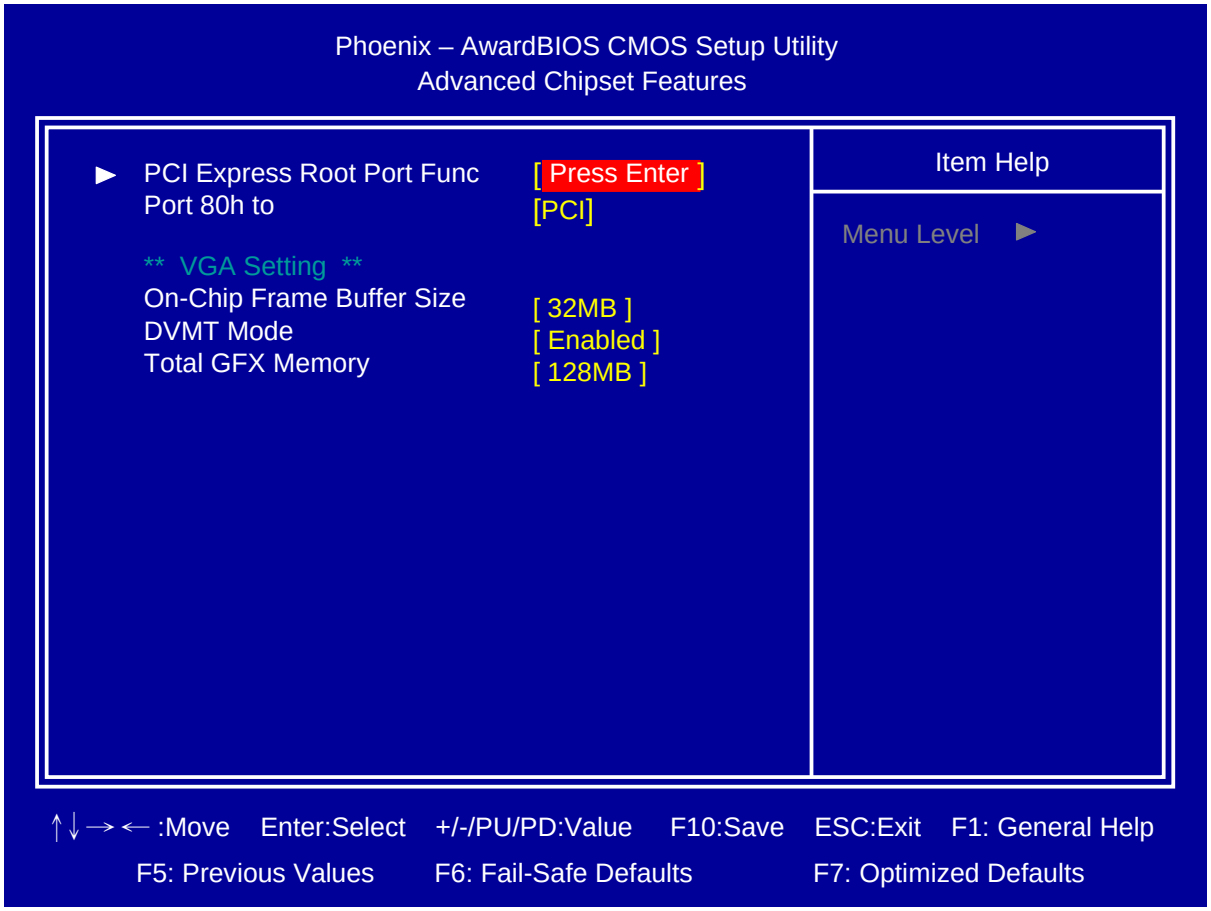
☐ **Report No FDD For WIN 95**

If running Windows 95/98 without floppy diskdrive, select “Enabled” to release IRQ6. This is required to pass Windows 95/98's SCT test, If select “Disabled”, BIOS will not report missing floppy drive to Win95/98.

☐ **Small Logo(EPA) Show**

Select EPA (Environmental Protection Agency) Energy Star logo appears during the system boot-up process.

2.4 Advanced Chipset Features



☐ On-Chip Frame Buffer Size

Select share system memory 1MB or 8MB.

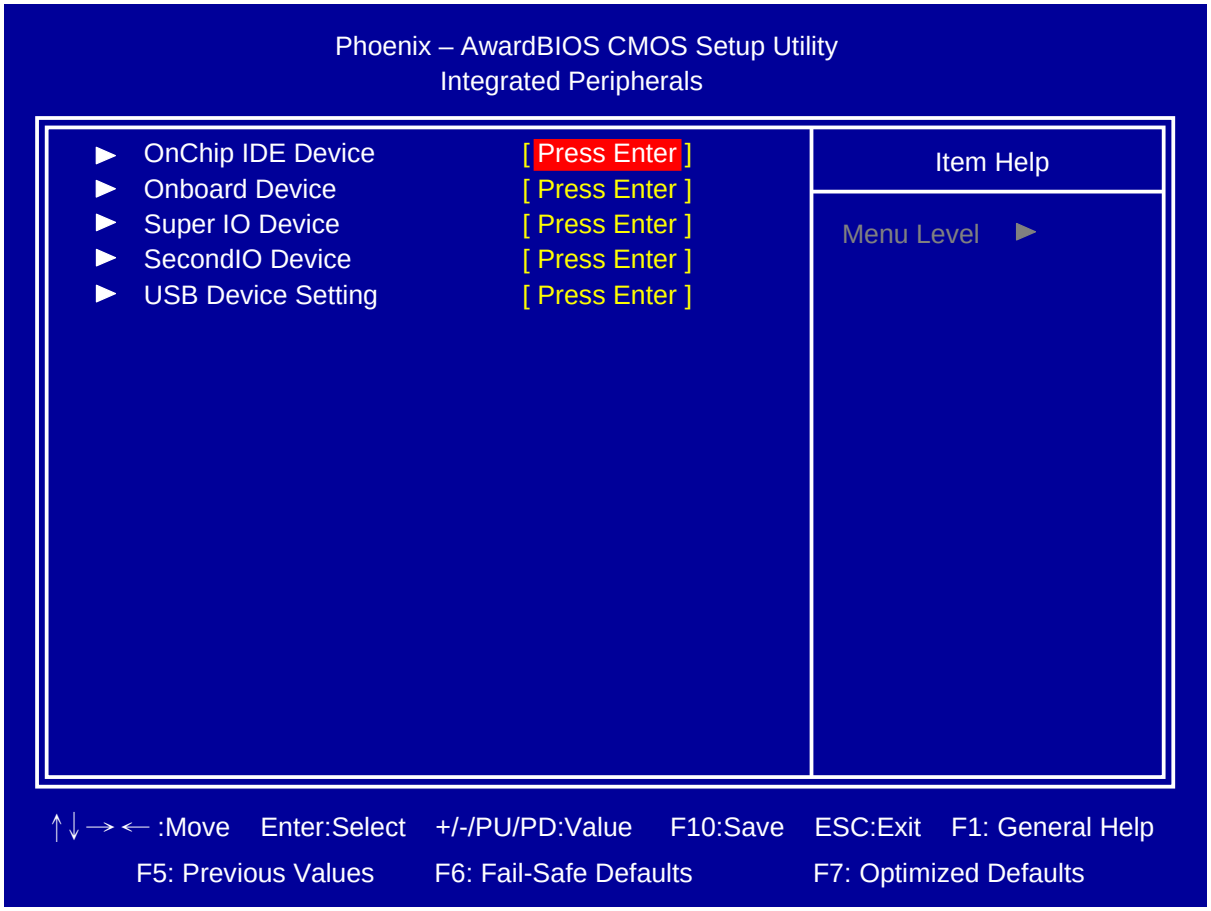
☐ DVMT Mode

DVMT (Dynamic Video Memory Technology) allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time, that improve efficiency of the memory allocated to either system or graphics processor.

☐ Total GFX Memory

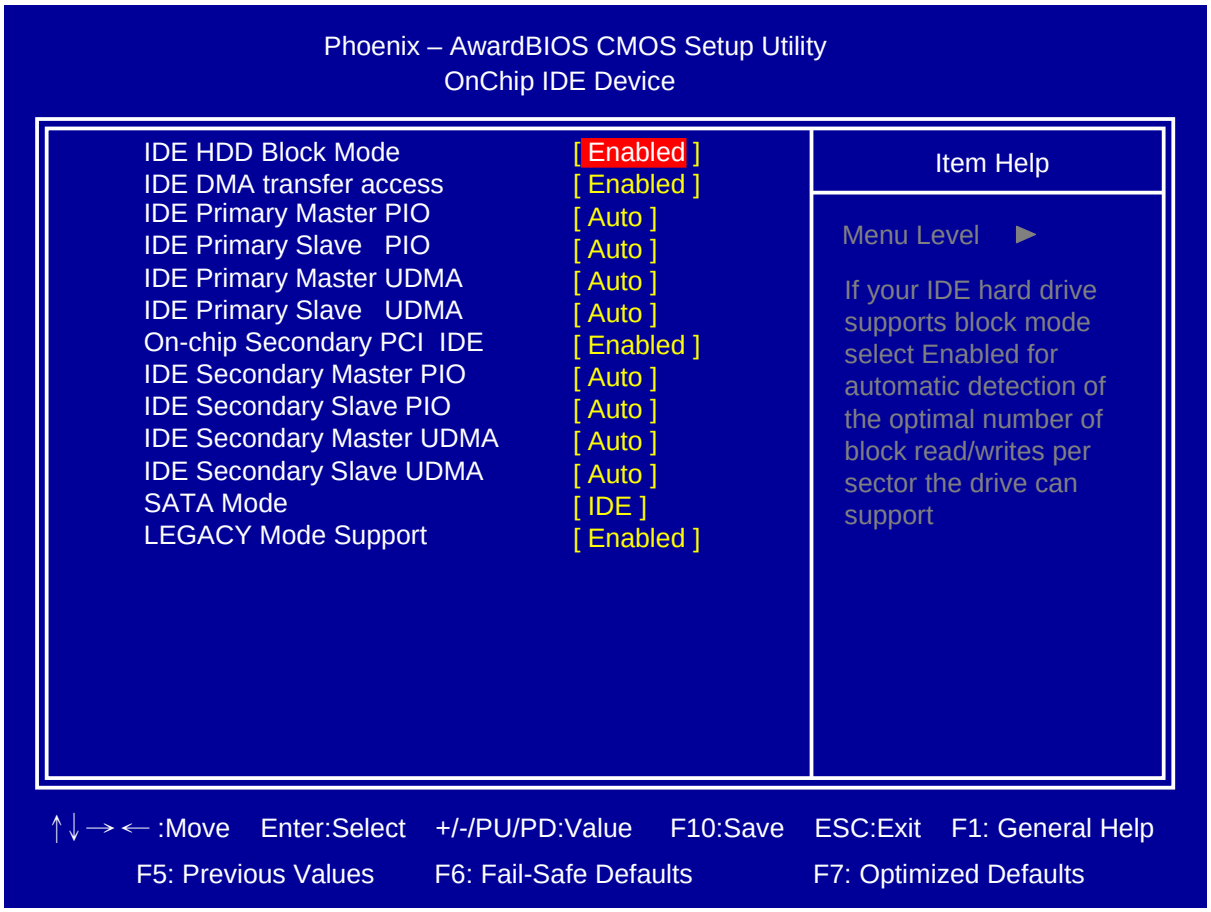
Select Total GFX Memory: 128MB, 256MB, or MAX. (For Win XP, the MAX Value is base on system memory size, 512MB for 1GB DRAM, 768MB for 1.5GB to 2GB, 1GB fro above 2GB.)

2.5 Integrated Peripherals


Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals
► OnChip IDE Device [Press Enter]
► Onboard Device [Press Enter]
► Super IO Device [Press Enter]
► SecondIO Device [Press Enter]
► USB Device Setting [Press Enter]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ OnChip IDE Device

Press <Enter> to set IDE and SATA device configuration.


Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode [Enabled]
IDE DMA transfer access [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
On-chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UDMA [Auto]
IDE Secondary Slave UDMA [Auto]
SATA Mode [IDE]
LEGACY Mode Support [Enabled]
Item Help
Menu Level ►
If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ IDE HDD Block Mode

Block mode is also called block transfer, multiple commands, or multiple sector read/write.

☐ IDE DMA transfer access

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s.

☐ On-Chip Secondary PCI IDE

The chipset contains a PCI IDE interface with support for two IDE channels. Select Enabled to activate the IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface.

☐ **IDE Primary Master PIO**
☐ **IDE Primary Slave PIO**
☐ **Secondary Master PIO**
☐ **Secondary Slave PIO**

The four IDE PIO (Programmed Input/Output) fields let you set a PIOmode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

☐ **IDE Primary Master UDMA**
☐ **IDE Primary Slave UDMA**
☐ **IDE Secondary Master UDMA**
☐ **IDE Secondary Slave UDMA**

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 33 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

☐ **SATA Mode**

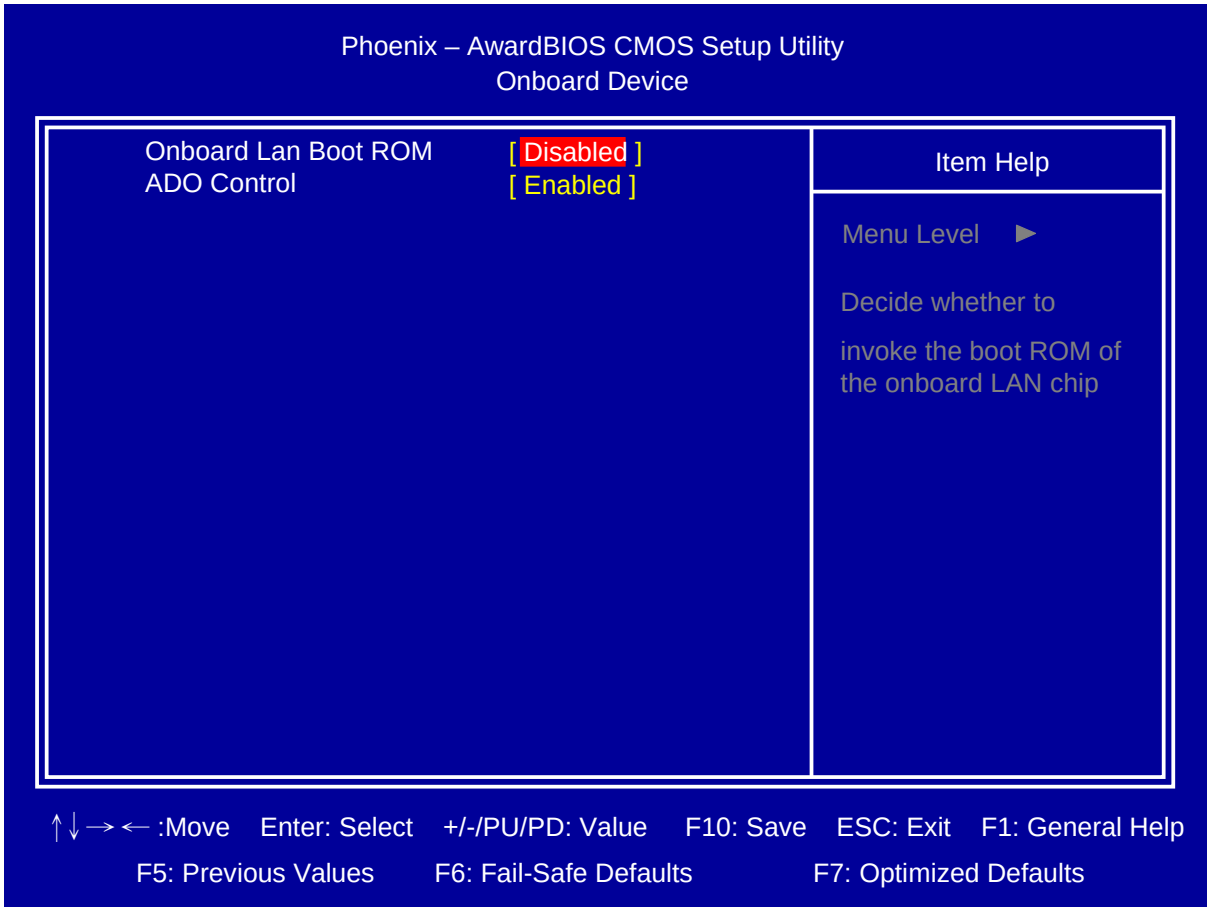
There have three selections in “SATA mode”:

- IDE: Default
- RAID: Enable SATA RAID function
- AHCI: Set this item to enable SATA AHCI function for WinXP-SPI+IAA driver support AHCI mode.

☐ **LEGACY Mode Support**

Certain os is not supported under Native mode.

☐ Onboard Device


Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device
Onboard Lan Boot ROM [Disabled]
ADO Control [Enabled]
Item Help
Menu Level ►
Decide whether to
invoke the boot ROM of
the onboard LAN chip
↑↓→← :Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ Onboard Lan Boot ROM

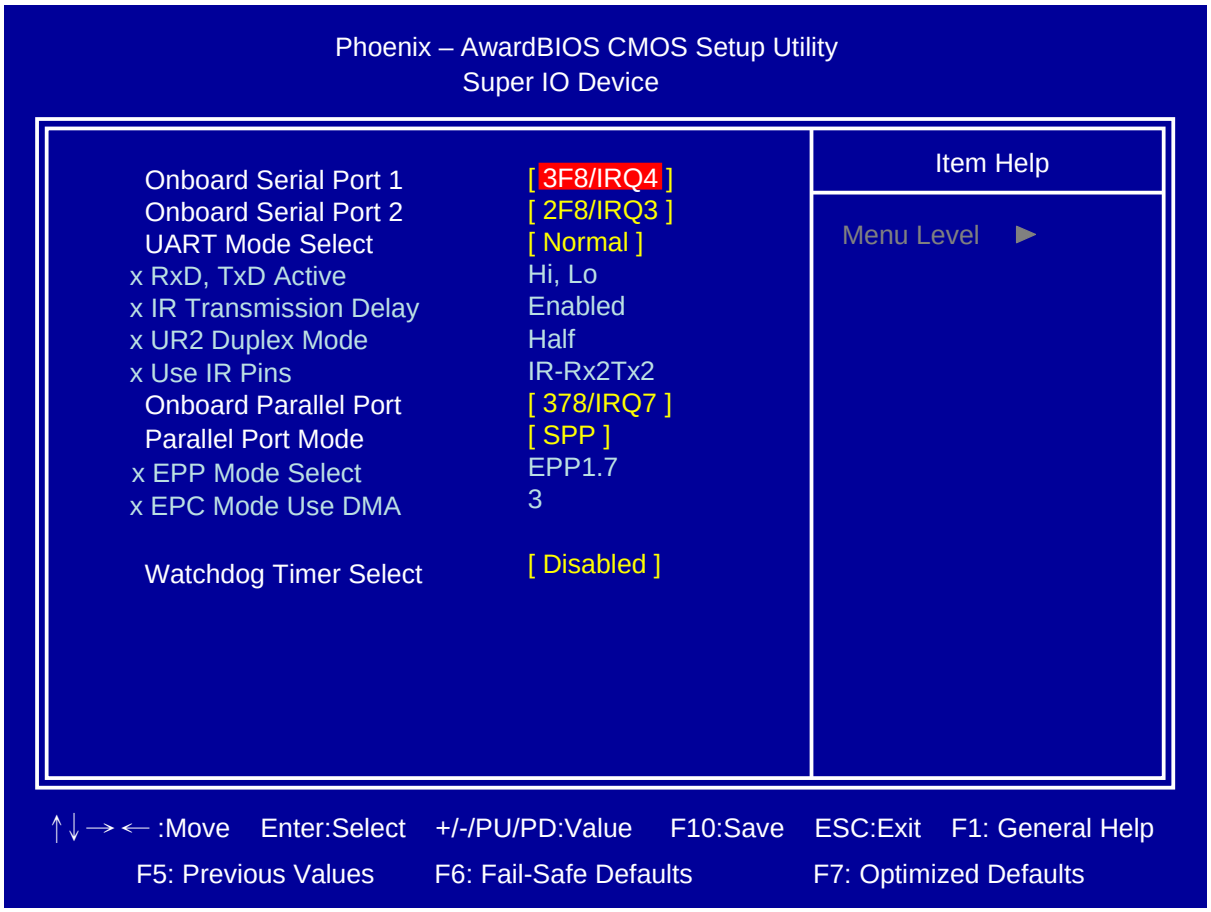
Decide whether to invoke the boot ROM of the onboard LAN chip

☐ ADO Control

Enable/Disable Audio control.

☐ Super IO Device

Press <Enter> to select Serial, Parallel and “l” configuration.


Phoenix – AwardBIOS CMOS Setup Utility
Super IO Device
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
UART Mode Select [Normal]
x RxD, TxD Active Hi, Lo
x IR Transmission Delay Enabled
x UR2 Duplex Mode Half
x Use IR Pins IR-Rx2Tx2
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
x EPP Mode Select EPP1.7
x EPC Mode Use DMA 3
Watchdog Timer Select [Disabled]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ Onboard Serial Port 1

Select serial port 1 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

☐ Onboard Serial Port 2

Select serial port 2 address: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3, or Auto.

☐ UART Mode Select

Select UART Mode: IrDA, ASKIR, or Normal.

☐ Onboard Parallel Port

Select onboard parallel port: Disabled, 378/IRQ7, 278/IRQ5, or 3BC/IRQ7.

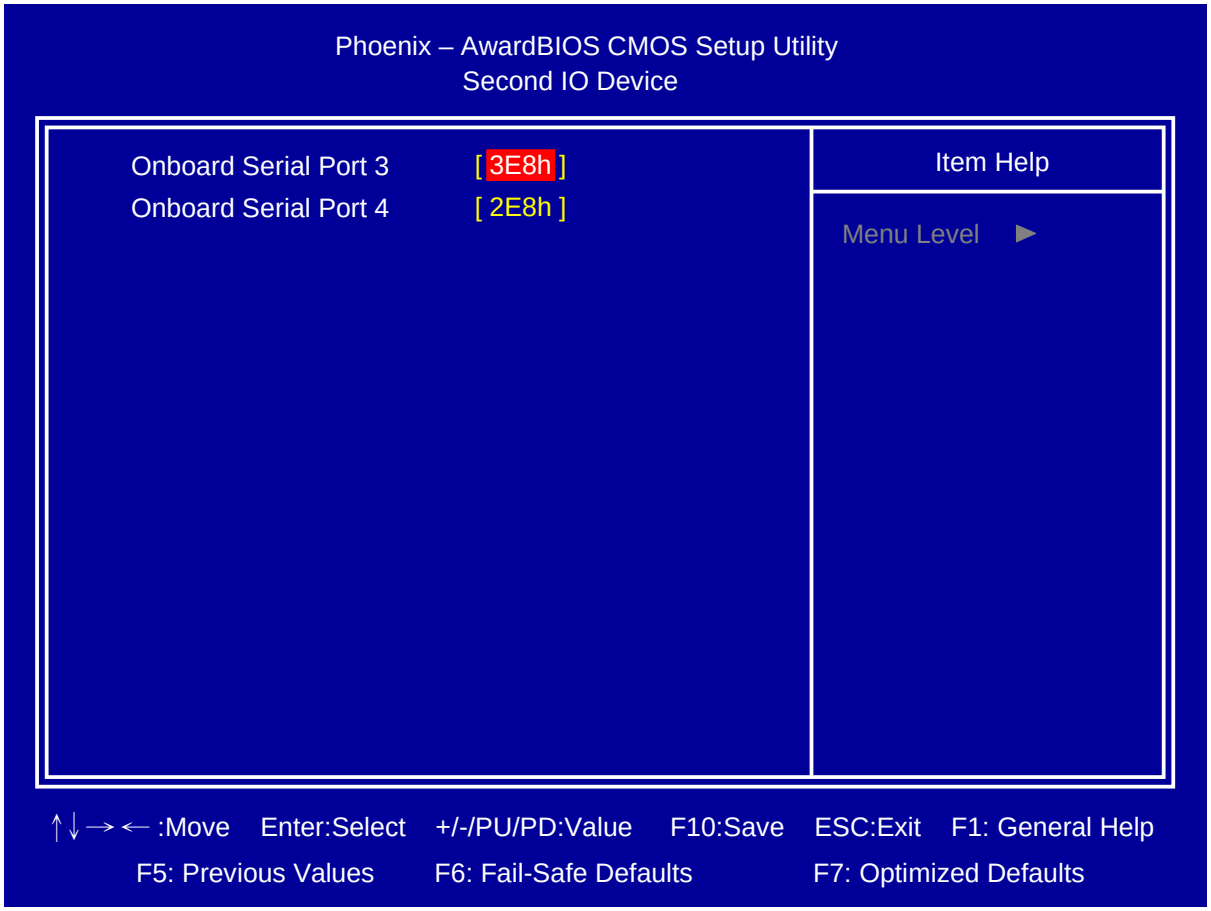
☐ **Parallel Port Mode**

Select Parellel Port Mode: SPP, EPP, ECP, ECP+EPP, or Normal.

☐ **Watchdog Timer Select**

Select Watch dog Disabled or set timer value: 10sec, 20sec, 30sec, 40sec, 1 min, 2min, or 4min.

Second IO Device

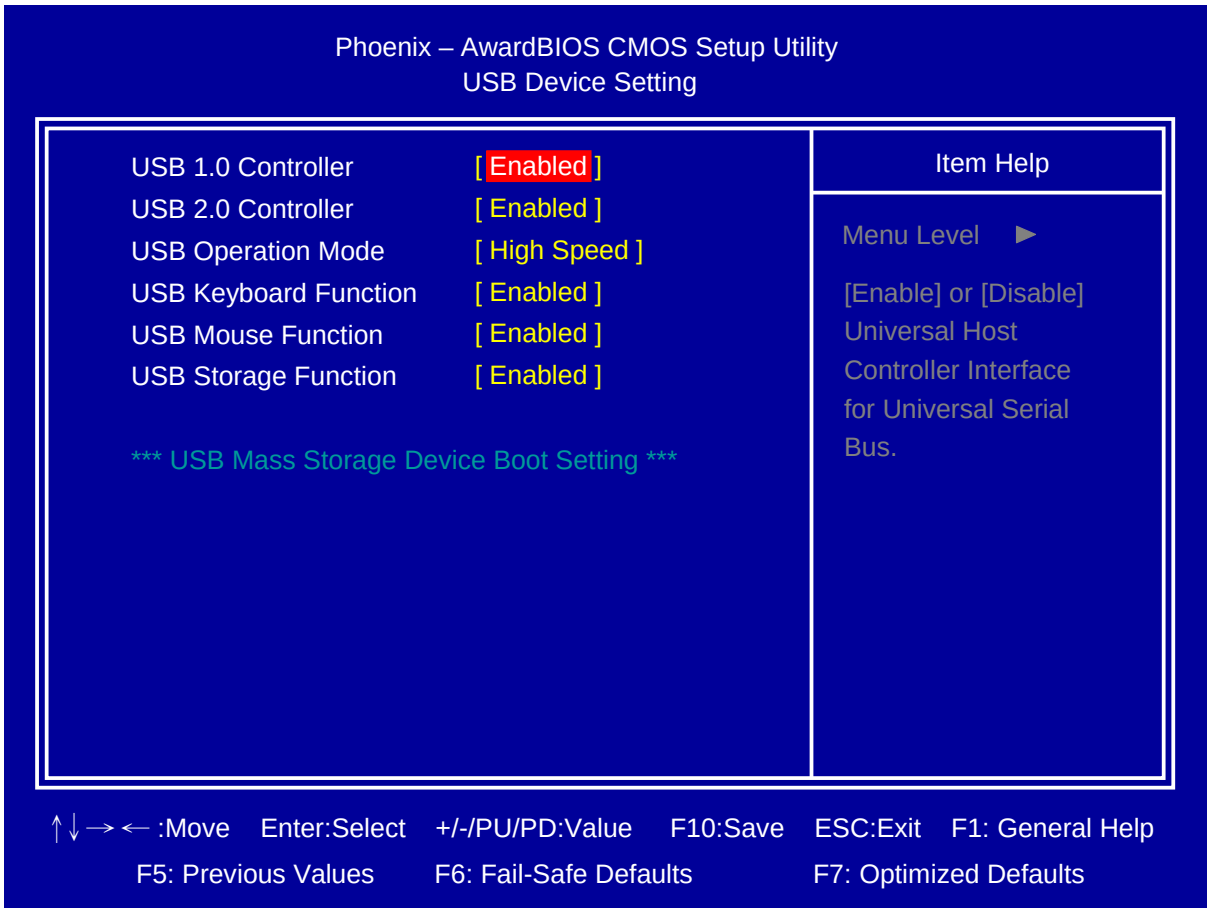

Phoenix – AwardBIOS CMOS Setup Utility
Second IO Device
Onboard Serial Port 3 [3E8h]
Onboard Serial Port 4 [2E8h]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Onboard Serial Port 3/4

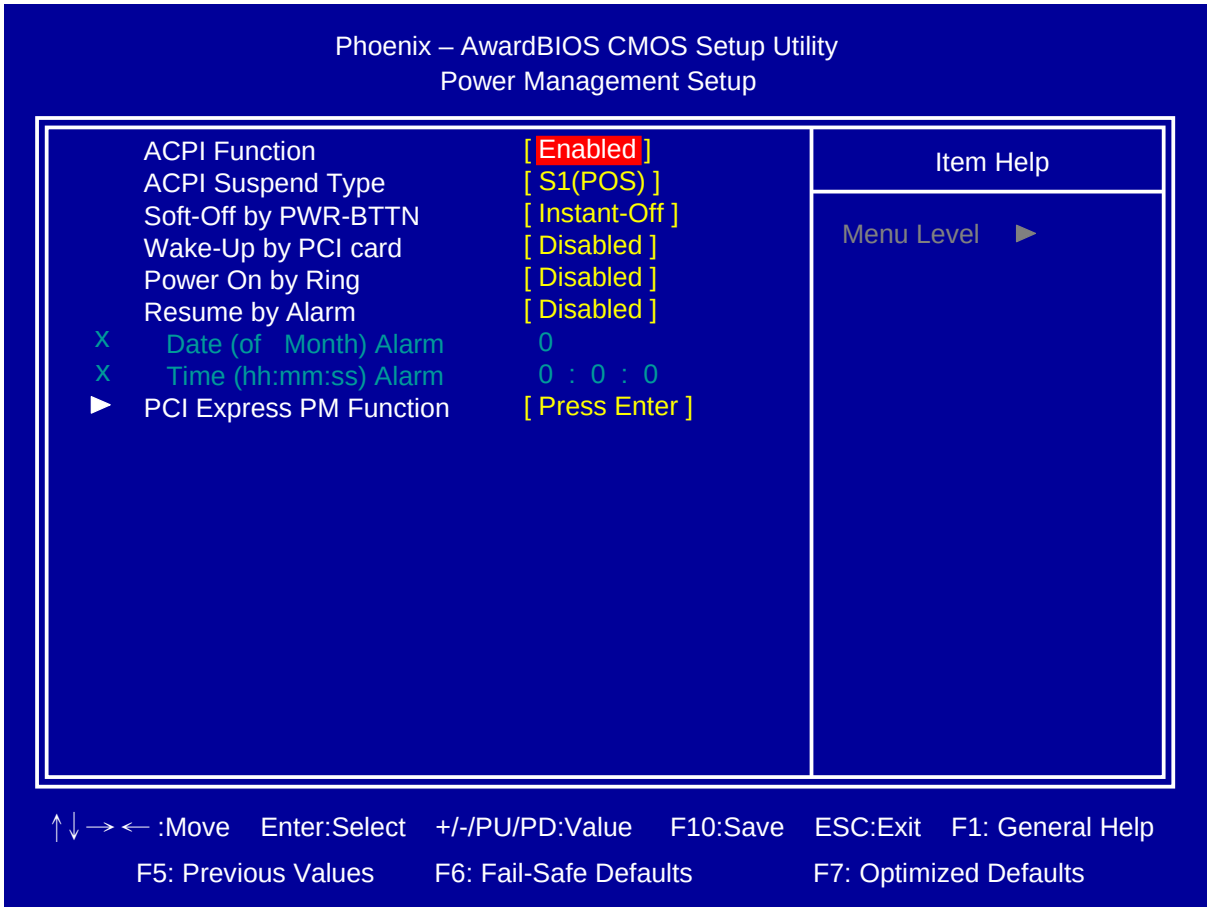
Select serial port address.

☐ USB Device Setting

Press <Enter> to select USB device configuration.


Phoenix – AwardBIOS CMOS Setup Utility
USB Device Setting
USB 1.0 Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Operation Mode [High Speed]
USB Keyboard Function [Enabled]
USB Mouse Function [Enabled]
USB Storage Function [Enabled]
*** USB Mass Storage Device Boot Setting ***
Item Help
Menu Level ►
[Enable] or [Disable] Universal Host Controller Interface for Universal Serial Bus.
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

2.6 Power Management Setup


Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Function [Enabled]
ACPI Suspend Type [S1(POS)]
Soft-Off by PWR-BTTN [Instant-Off]
Wake-Up by PCI card [Disabled]
Power On by Ring [Disabled]
Resume by Alarm [Disabled]
X Date (of Month) Alarm 0
X Time (hh:mm:ss) Alarm 0 : 0 : 0
► PCI Express PM Function [Press Enter]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ ACPI Function

Select ACPI (Advanced Configuration and Power Management) Enabled/Disabled.

☐ ACPI Suspend Type

Select S1(POS) type.

☐ Soft-Off by PER-BTTN

Select power button function,

Instant-off: Press power button will power off instantly.

Delay 4 Sec: Press power button 4 second to power off.

☐ Wake-Up by PCI card

Select Wake-UP by PCI device Enabled/Disabled

☐ Power On by Ring

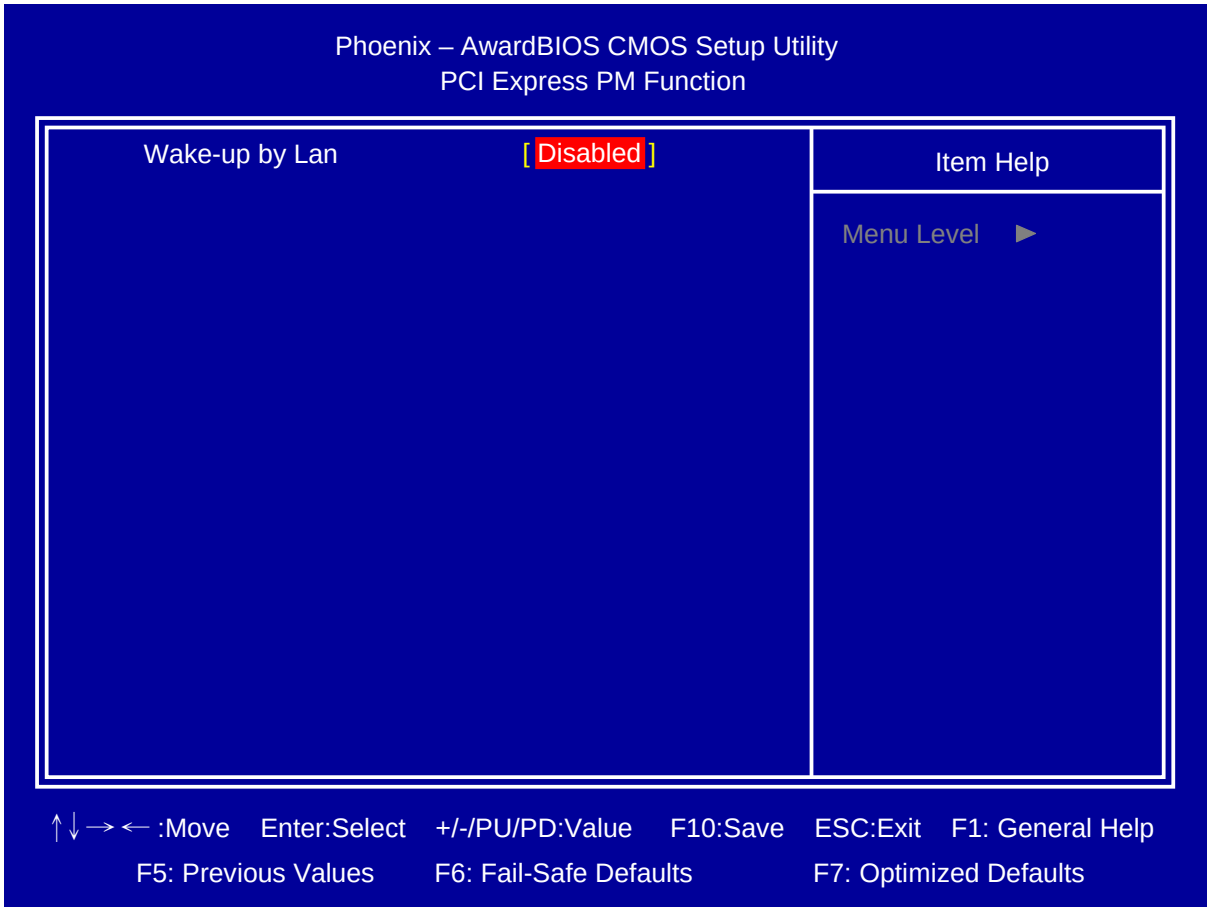
Select Power on by Ring Indicator signal from Modem.

☐ Resume by Alarm

Set date and time to power on system from soft-off state.

☐ PCI Express PM Function

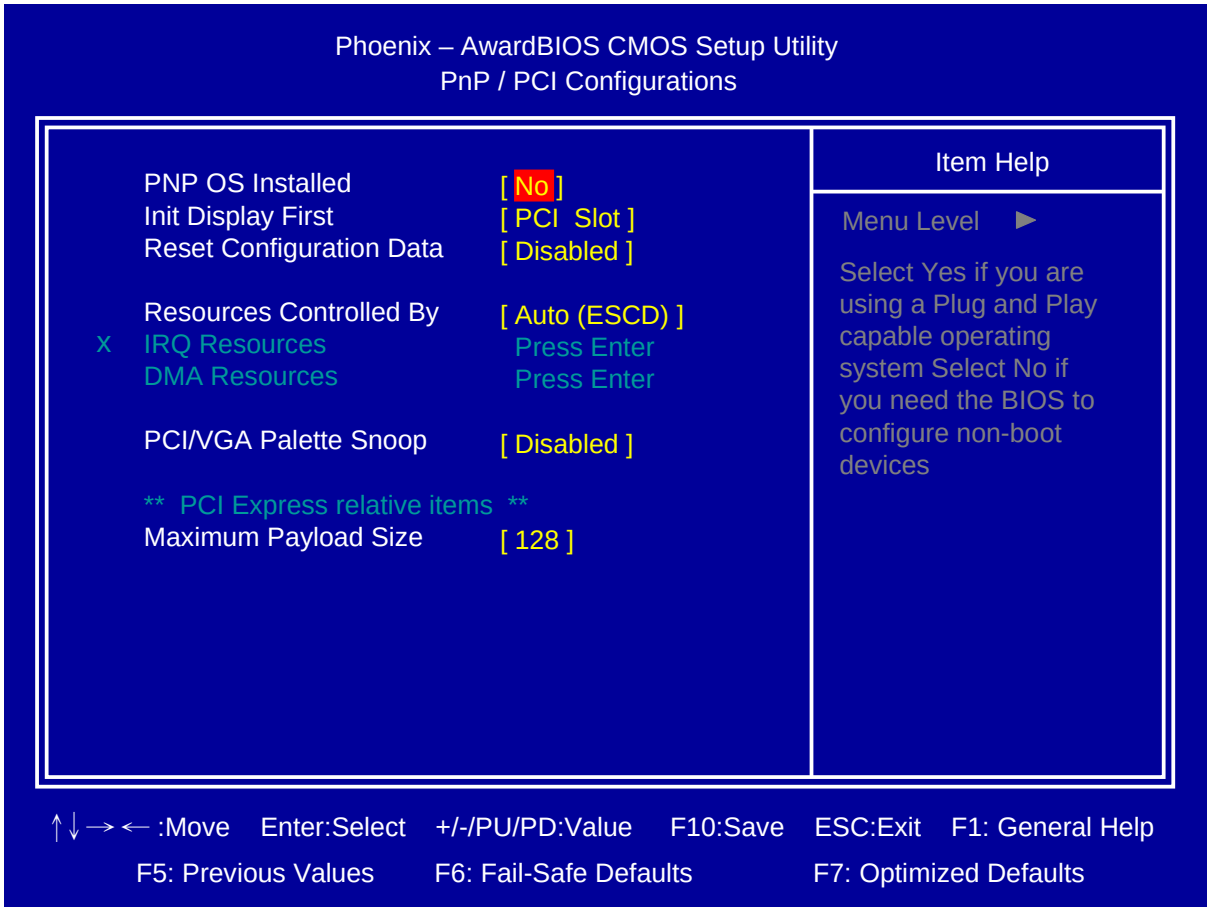
Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.


Phoenix – AwardBIOS CMOS Setup Utility
PCI Express PM Function
Wake-up by Lan
[Disabled]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ Wake-up by Lan

Select wake-up by Lan Enabled/Disabled.

2.7 PnP/PCI Configurations


Phoenix – AwardBIOS CMOS Setup Utility
PnP / PCI Configurations
PNP OS Installed [No]
Init Display First [PCI Slot]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto (ESCD)]
X IRQ Resources Press Enter
DMA Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
** PCI Express relative items **
Maximum Payload Size [128]
Item Help
Menu Level ►
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ **Init Display First**

Select initial display by PCI or Onboard device.

☐ **Reset Configuration Data**

Select Enabled to reset Extended System Configuration Data (ESCD) when you exit BIOS setup utility, if you have installed new add-on card and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

☐ **Resources Controlled By**

BIOS can automatically configure all the boot and Plug and Play compatible devices.

If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

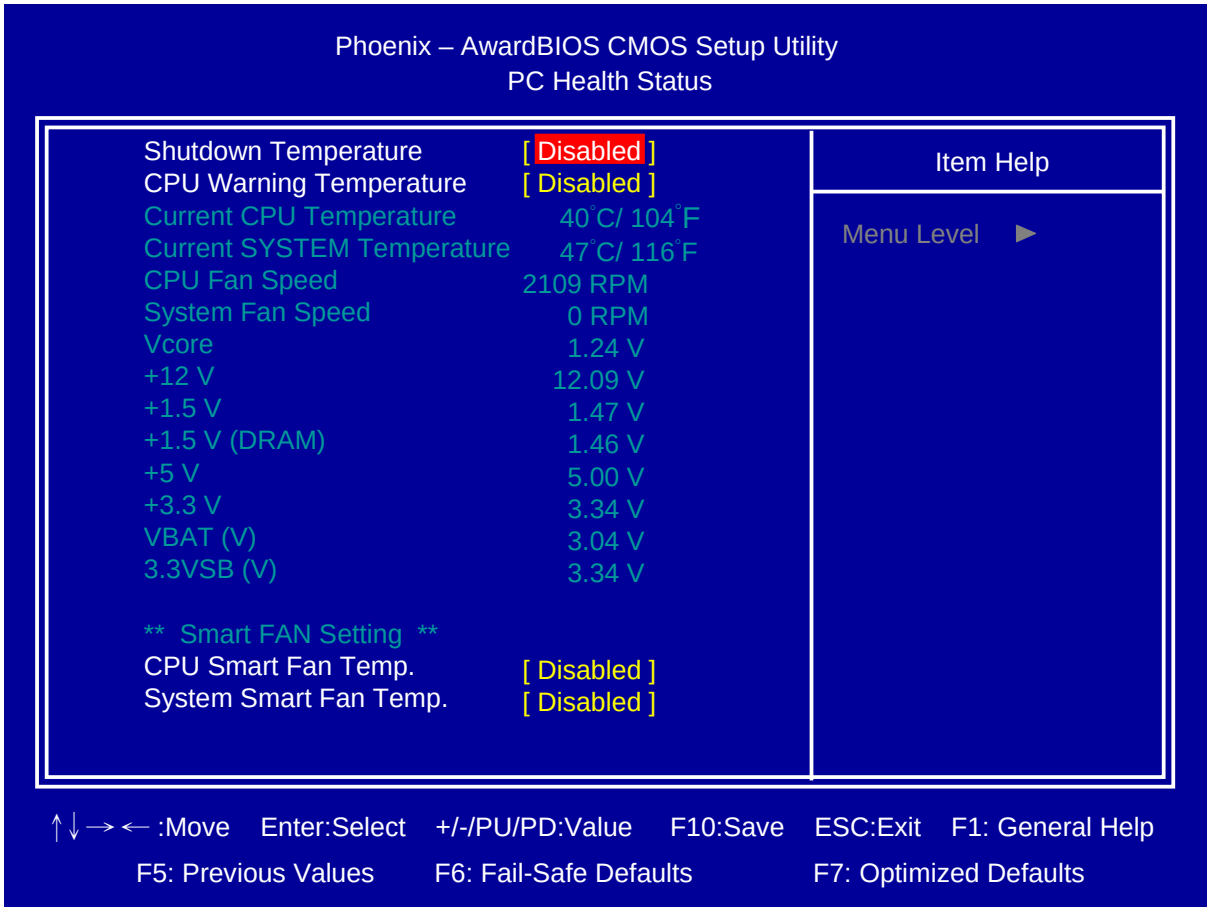
☐ **PCI/VGA Palette Snoop**

Select PCI/VGA Palette Snoop Enabled/Disabled.

☐ **Maximum Payload Size**

Set maximum TLP payload size for the PCI Express devices. The unit is byte.

2.8 PC Health Status


Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status
Shutdown Temperature [Disabled]
CPU Warning Temperature [Disabled]
Current CPU Temperature 40°C/ 104°F
Current SYSTEM Temperature 47°C/ 116°F
CPU Fan Speed 2109 RPM
System Fan Speed 0 RPM
Vcore 1.24 V
+12 V 12.09 V
+1.5 V 1.47 V
+1.5 V (DRAM) 1.46 V
+5 V 5.00 V
+3.3 V 3.34 V
VBAT (V) 3.04 V
3.3VSB (V) 3.34 V
** Smart FAN Setting **
CPU Smart Fan Temp. [Disabled]
System Smart Fan Temp. [Disabled]
Item Help
Menu Level ►
↑↓→← :Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1: General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

☐ **Shutdown Temperature**

If CPU temperature reaches the setting value will automatic shutdown system.

☐ **CPU Warning Temperature**

If CPU temperature reaches the setting value will beep in DOS mode.

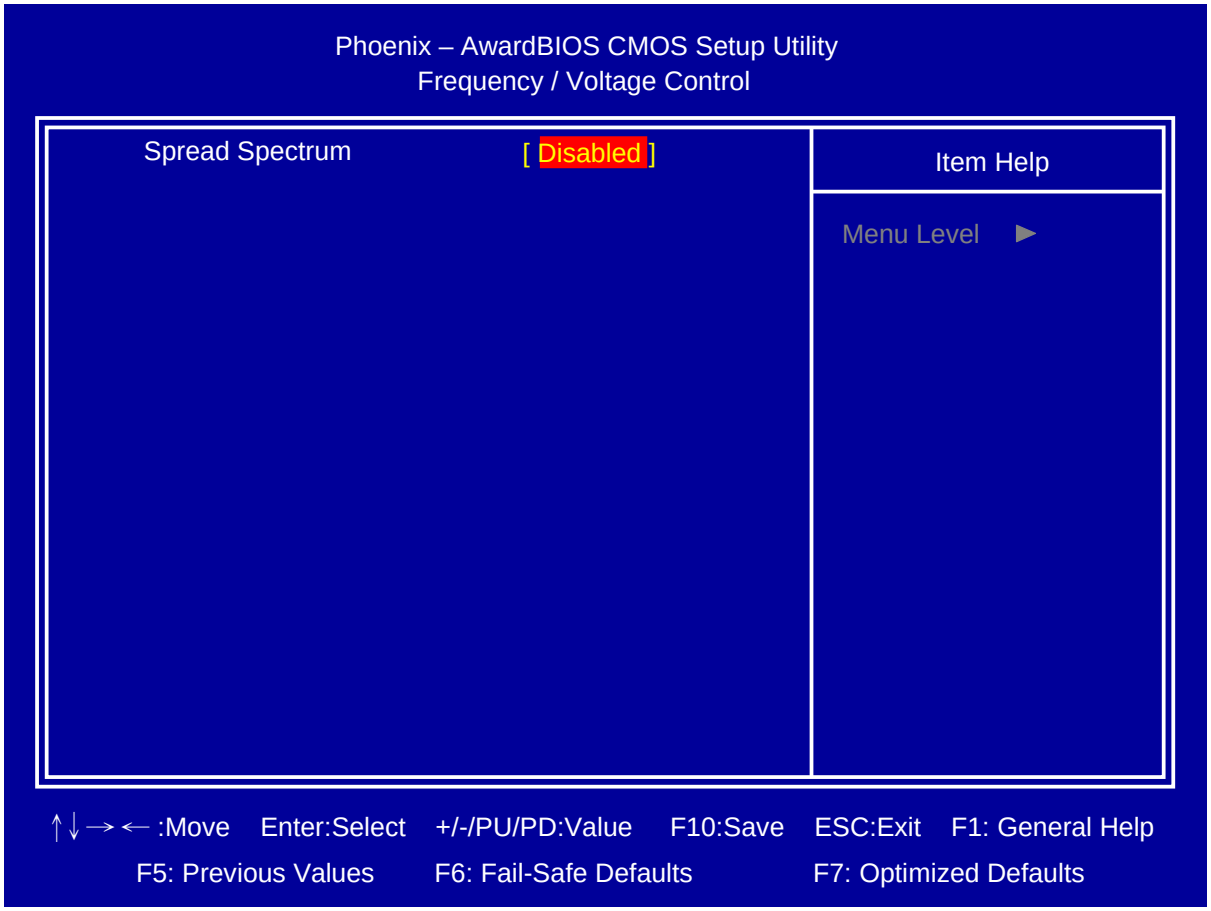
☐ **CPU Smart Fan Temperature**

Setup CPU Smart FAN temperature.

☐ **System Smart Fan Temp.**

Setup System Smart FAN temperature.

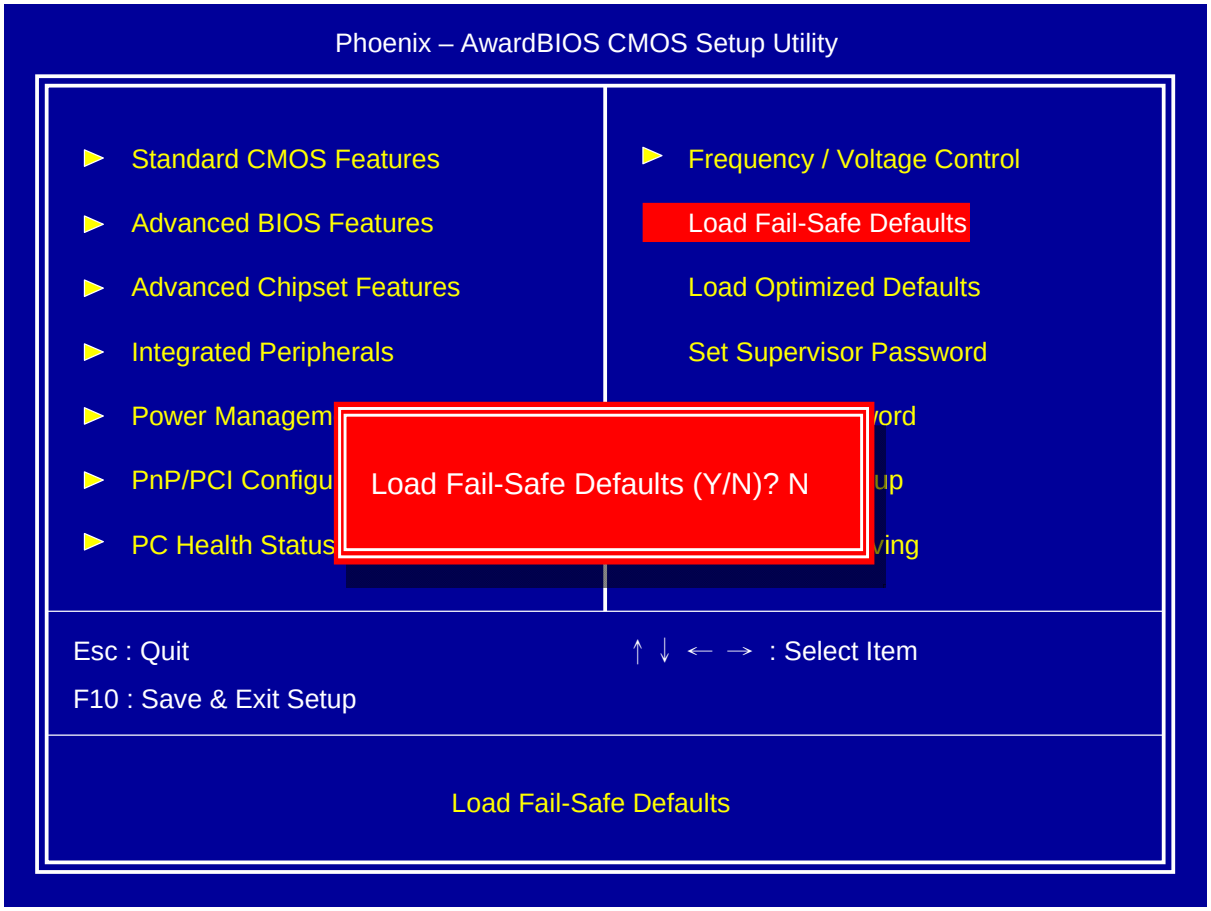
2.9 Frequency/Voltage Control



☐ **Spread Spectrum**

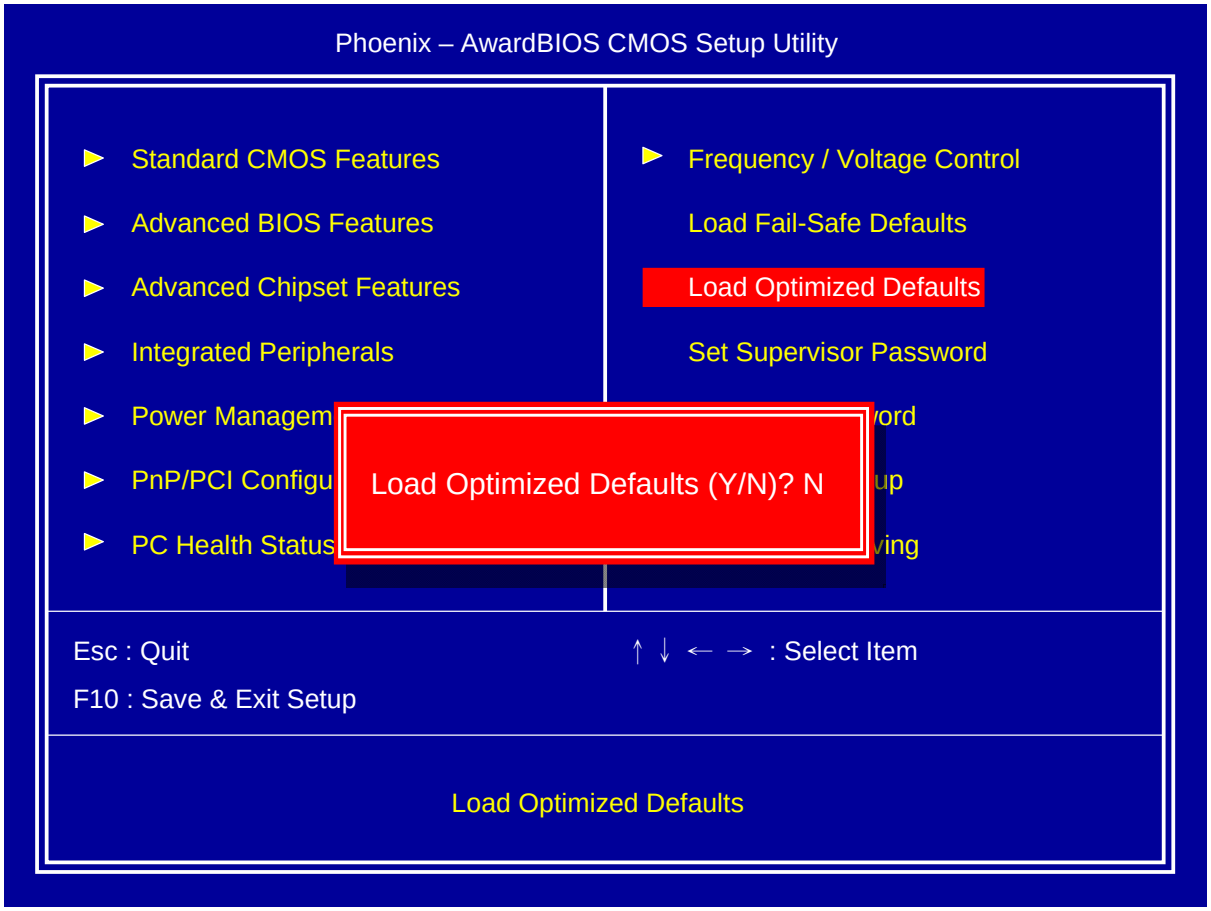
Select “Spread Spectrum” Enabled/Disabled.

2.10 Load Fail-Safe Defaults



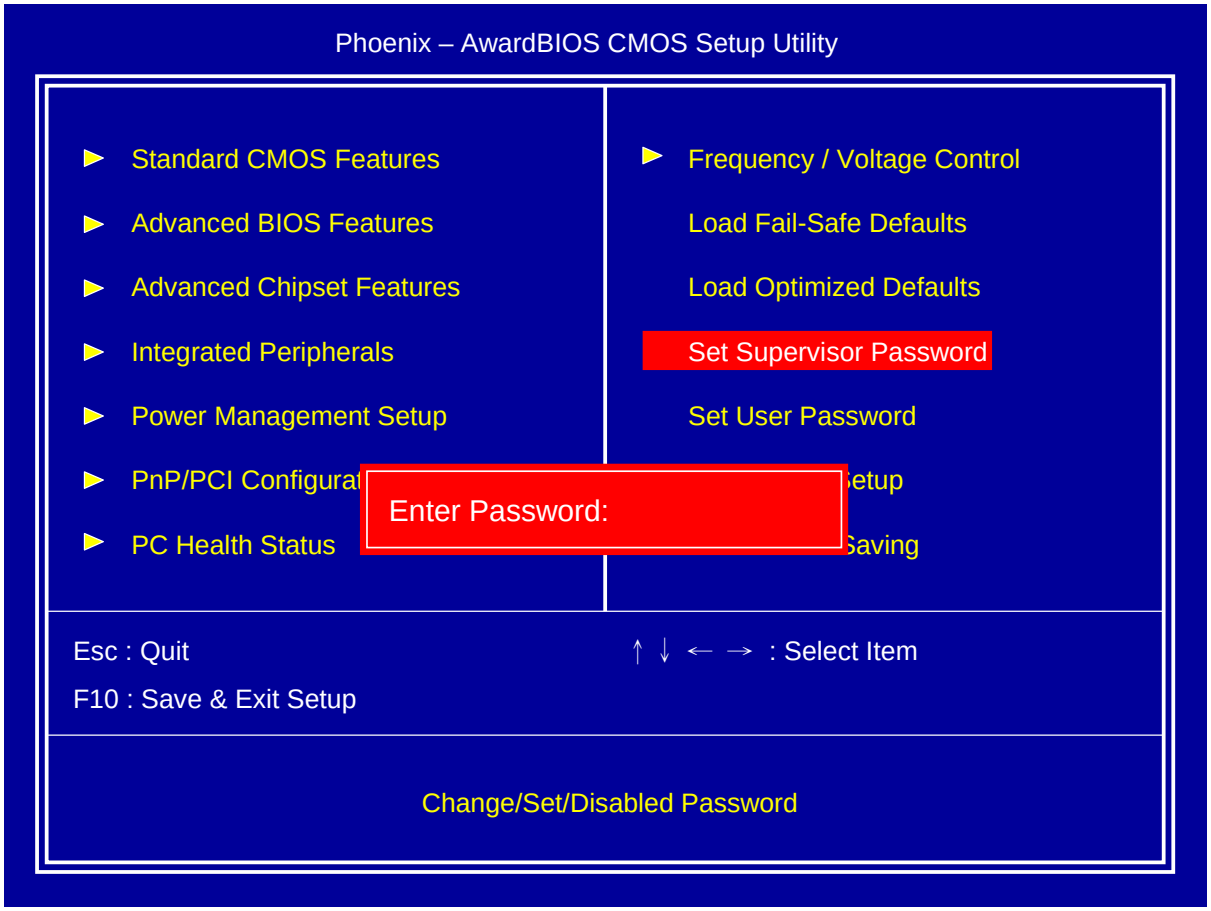
This item will set configuration for non-optimized system operation.

2.11 Load Optimized Defaults



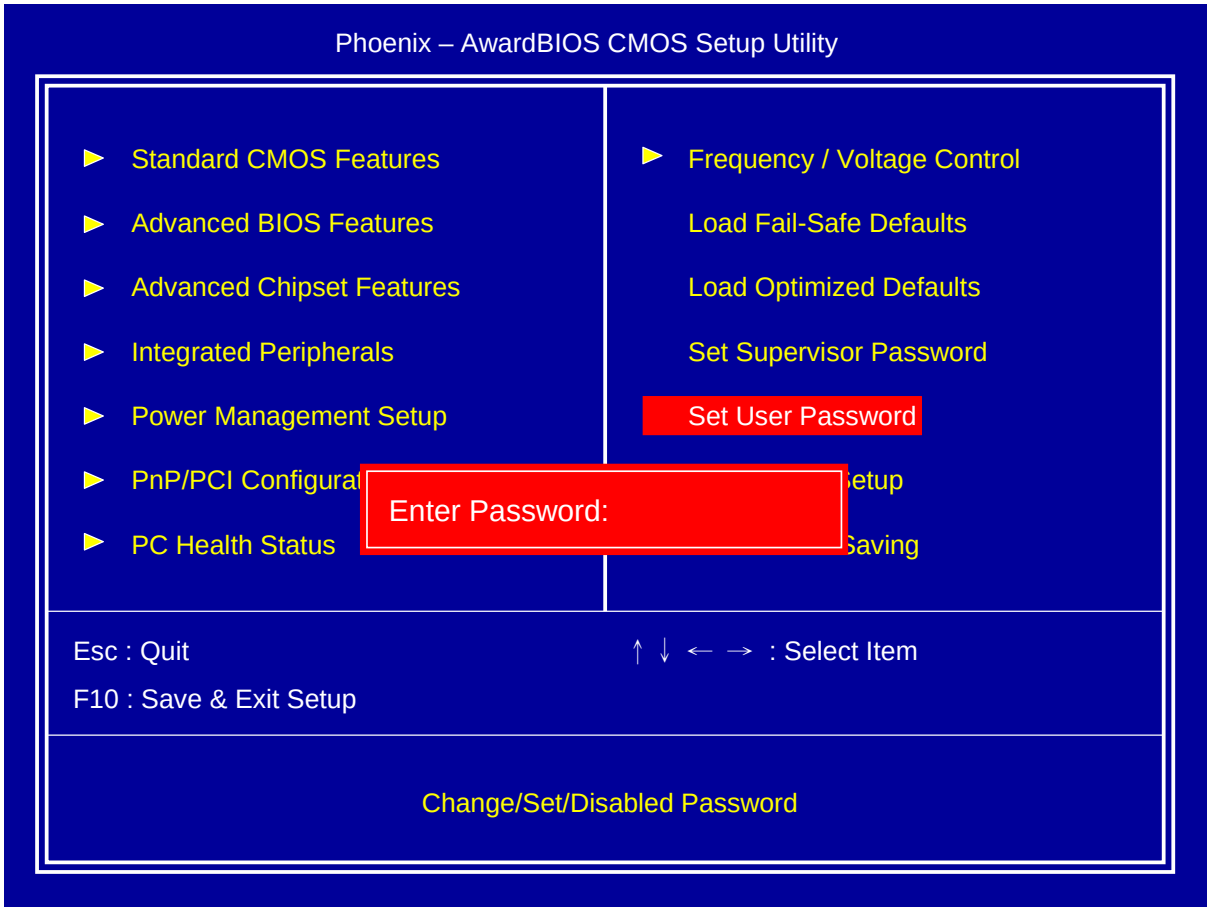
This item will restore factory default setting for optimized system operation.

2.12 Set Supervisor Password



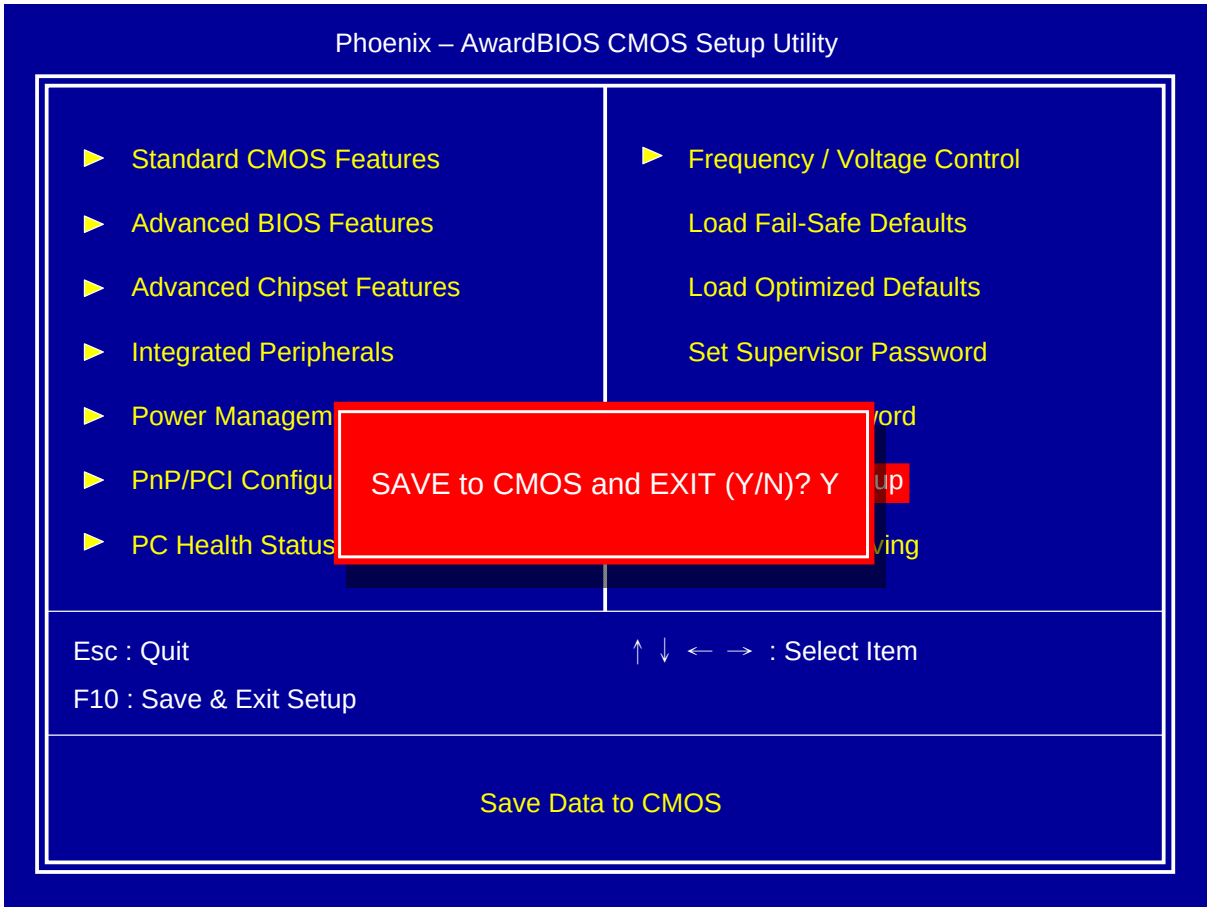
If set supervisor password, it will request typing password to enter BIOS setup utility.

2.13 Set User Password



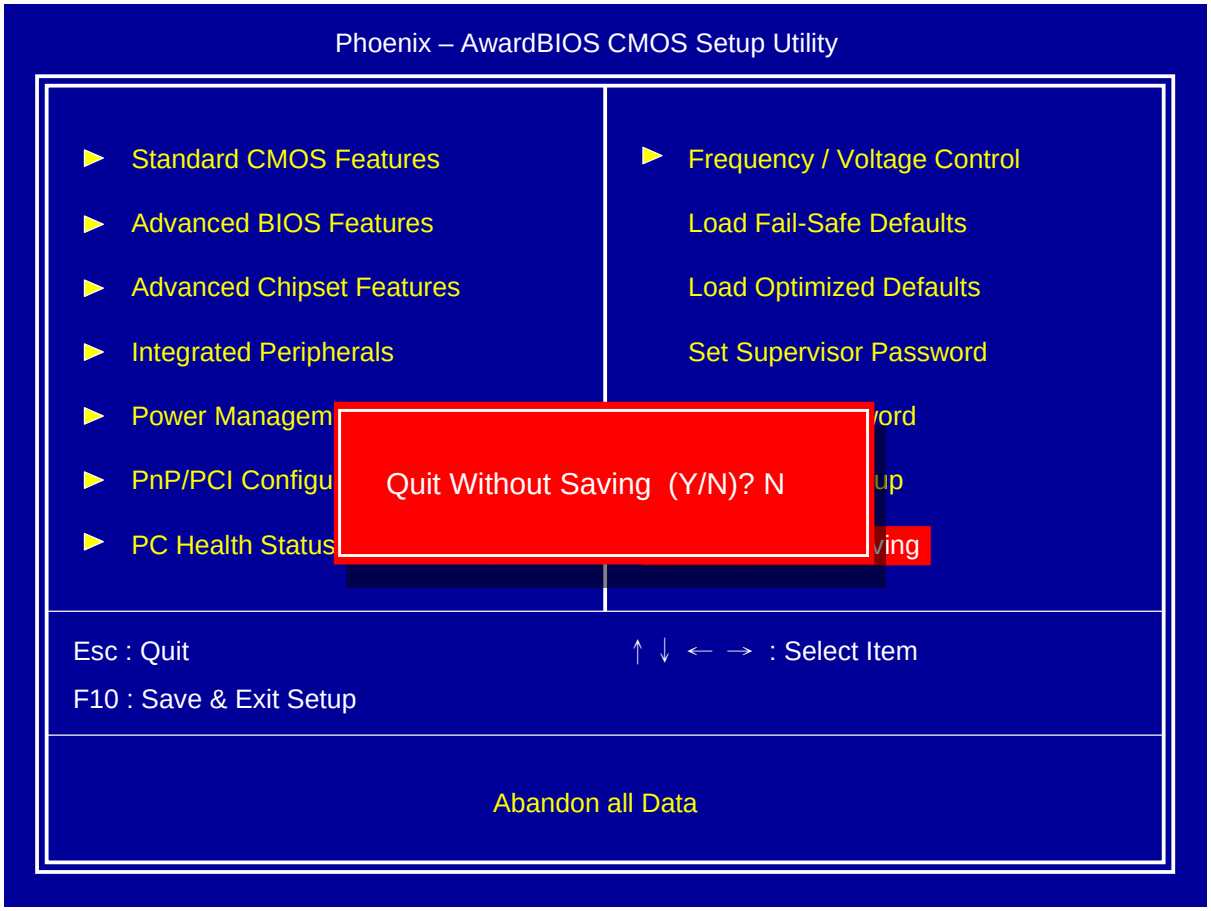
If set user password will request typing password to enter BIOS setup utility, and does not allow modifying configuration.

2.14 Save & Exit Setup



This item confirm save configuration or not before exit BIOS setup utility,
Press <Y> and <Enter> to save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

2.15 Exit Without Saving



This item confirm save configuration or not before quit BIOS setup utility,
Press <Y> and <Enter> will not save configuration, then reboot system.
Press <N> and <Enter> will back to BIOS setup utility.

Chapter 3 Drivers Installation

This chapter introduces driver installation information.

Please insert the utility CD to CD-ROM drive, the install menu will appear automatically, if the install menu did not list suitable driver of Operate System or did not appear automatically, please select corresponding driver of utility CD to install.

The Windows XP driver installation steps are as below.

3.1 Intel Chipset Device Software

Step 1. Click “Next” to continue.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Step 2. Read the License Agreement and click “Yes” to continue.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Step 3. Click “Next” to continue.

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 9.1.1.1025
* Target Chipset#: Intel(R) 5 Series/3400 Series Chipse
* Date: December 14 2009
****
< Back
Next >
Cancel
Intel® Installation Framework

Step 4. Click “Next” to continue.

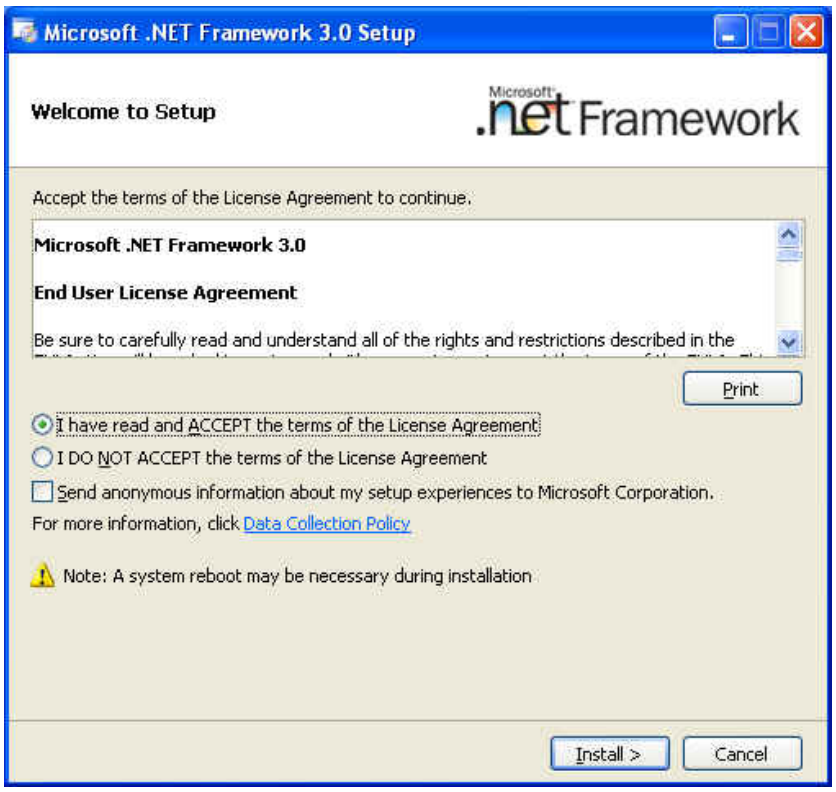
Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) ICH10 Family USB Universal Host Controller - 3A67
Version: 9.0.0.1005
Installing Driver: Intel(R) ICH10 Family USB Universal Host Controller - 3A68
Version: 9.0.0.1005
Installing Driver: Intel(R) ICH10 Family USB Universal Host Controller - 3A69
Version: 9.0.0.1005
Installing Driver: Intel(R) ICH10 Family USB Enhanced Host Controller - 3A6A
Version: 9.0.0.1005
Installing Driver: Intel(R) ICH10 Family USB Enhanced Host Controller - 3A6C
Version: 9.0.0.1005
Click Next to continue.
Next
Intel® Installation Framework

Step 5. Click “Finish” to complete setup.

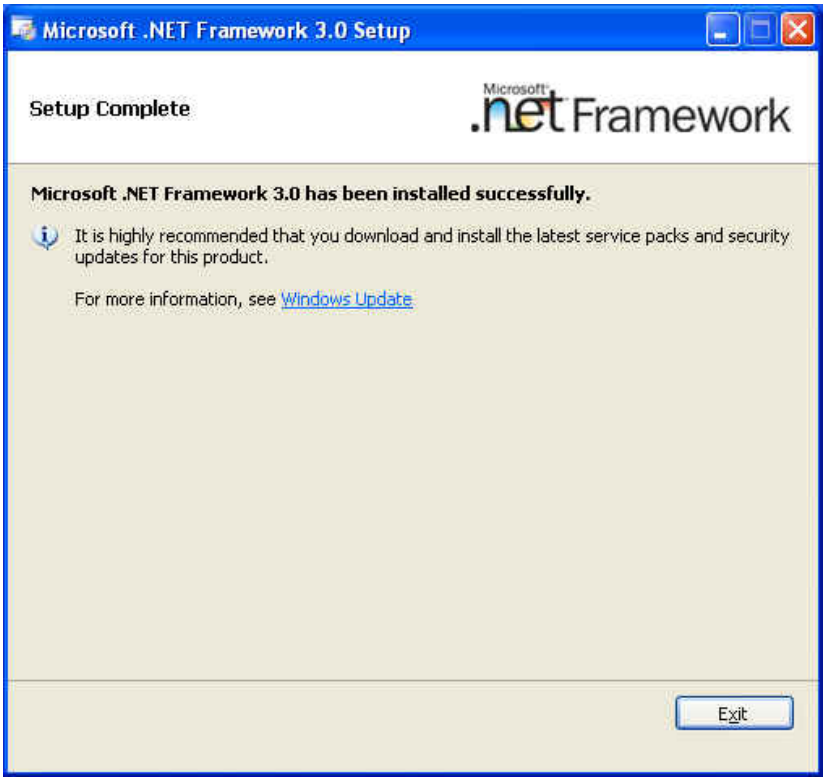
Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

3.2 Net Framework

Step 1. Click “Install” to continue.

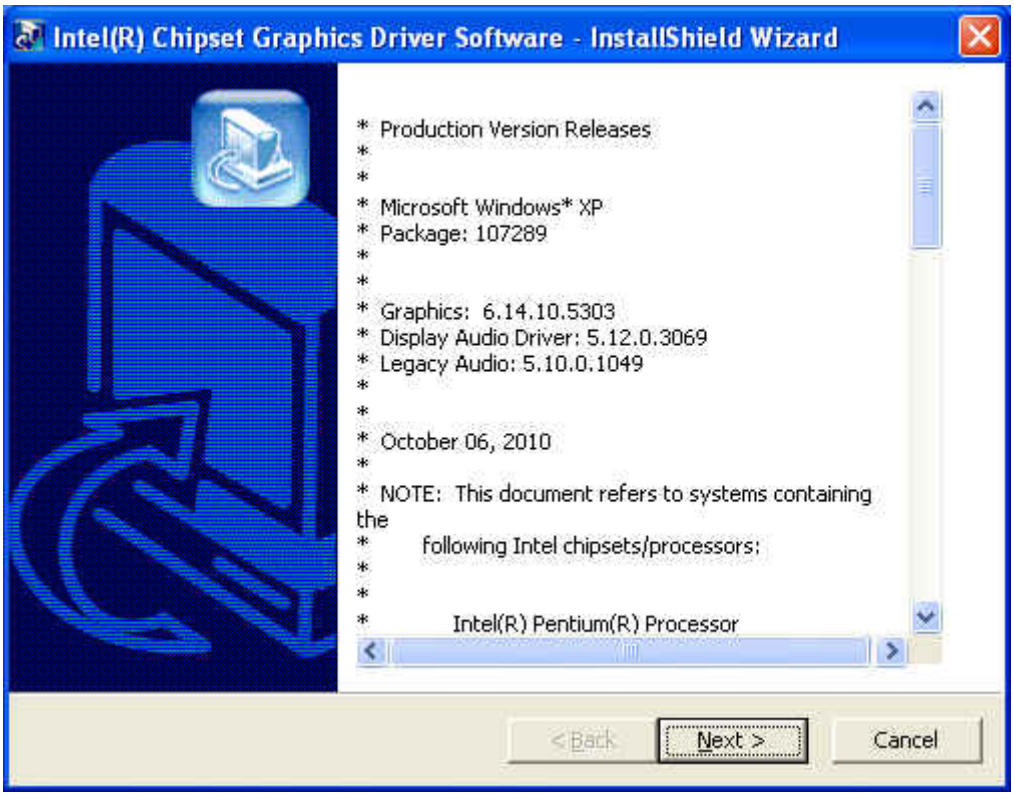

Microsoft .NET Framework 3.0 Setup
Welcome to Setup
Microsoft .net Framework
Accept the terms of the License Agreement to continue.
Microsoft .NET Framework 3.0
End User License Agreement
Be sure to carefully read and understand all of the rights and restrictions described in the
Print
I have read and ACCEPT the terms of the License Agreement
I DO NOT ACCEPT the terms of the License Agreement
Send anonymous information about my setup experiences to Microsoft Corporation.
For more information, click Data Collection Policy
Note: A system reboot may be necessary during installation
Install >
Cancel

Step 2. Click “Exit” to complete setup.


Microsoft .NET Framework 3.0 Setup
Setup Complete
Microsoft .net Framework
Microsoft .NET Framework 3.0 has been installed successfully.
It is highly recommended that you download and install the latest service packs and security updates for this product.
For more information, see Windows Update
Exit

3.3 Intel Graphic Media Accelerator Driver

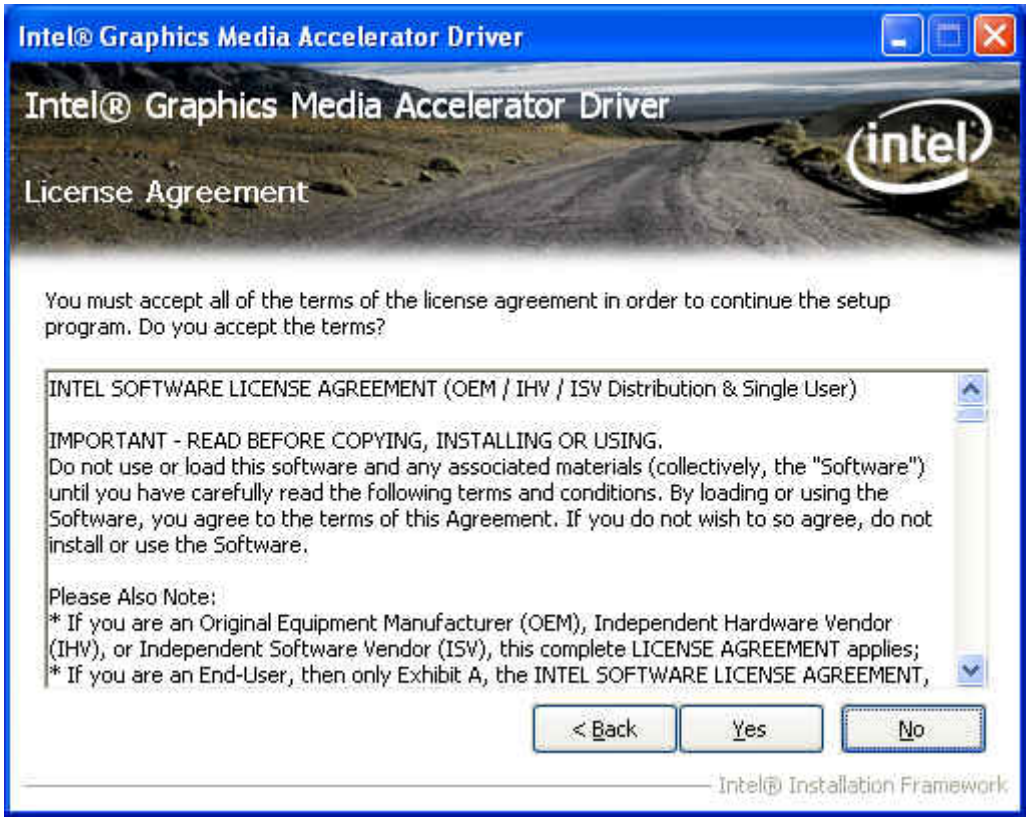
Step 1. Click “Next” to continue.



Step 2. Click “Next” to continue.

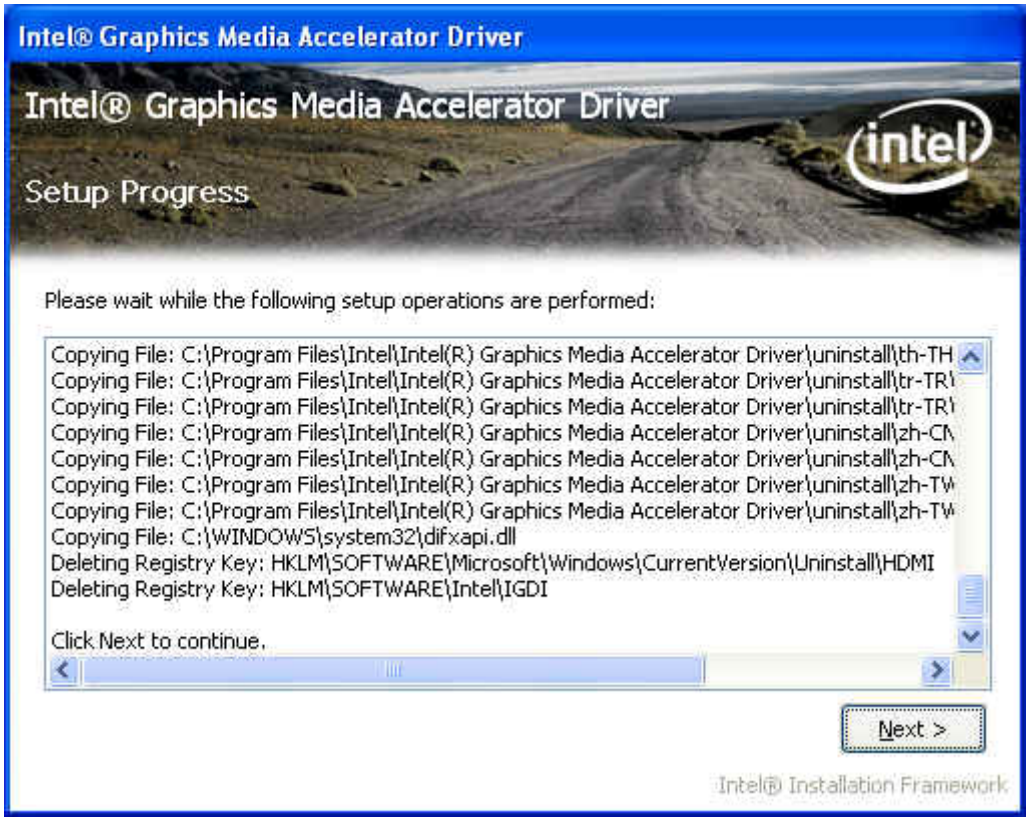
Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Welcome to the Setup Program
intel
This setup program will install the following components:
- Intel® Graphics Media Accelerator Driver
It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Step 4. Read the License Agreement and click “Yes” to continue.


Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
* If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT,
< Back
Yes
No
Intel® Installation Framework

Step 5. Click “Next” to continue.

Step 6. Click “Next” to continue.

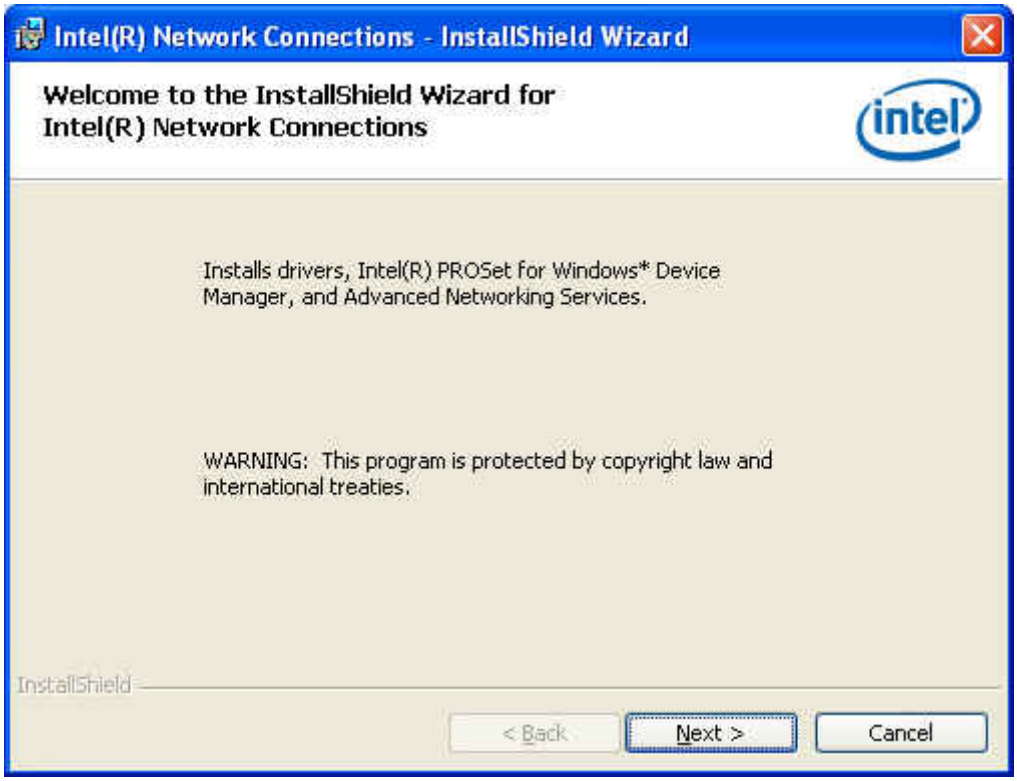

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Progress
Please wait while the following setup operations are performed:
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\th-TH
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\tr-TR
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-CN
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\Program Files\Intel\Intel(R) Graphics Media Accelerator Driver\uninstall\zh-TW
Copying File: C:\WINDOWS\system32\difxapi.dll
Deleting Registry Key: HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall\HDMI
Deleting Registry Key: HKLM\SOFTWARE\Intel\IGDI
Click Next to continue.
Next >
Intel® Installation Framework

Step 7. Click “Finish” to complete setup.

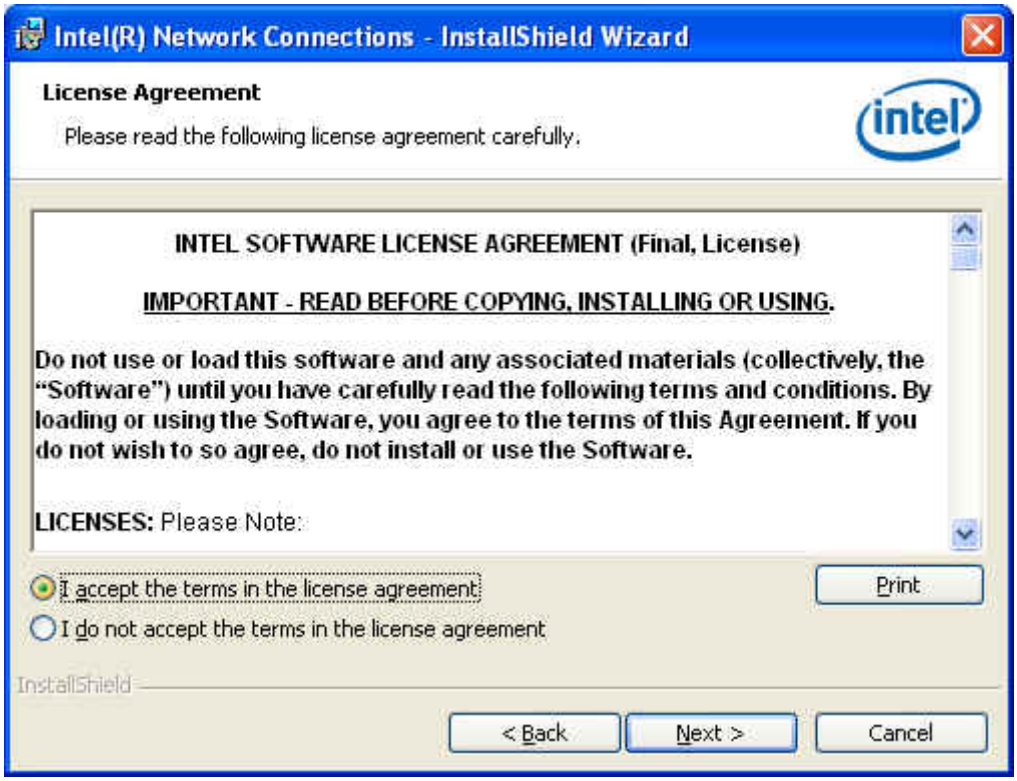
Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

3.4 LAN Driver

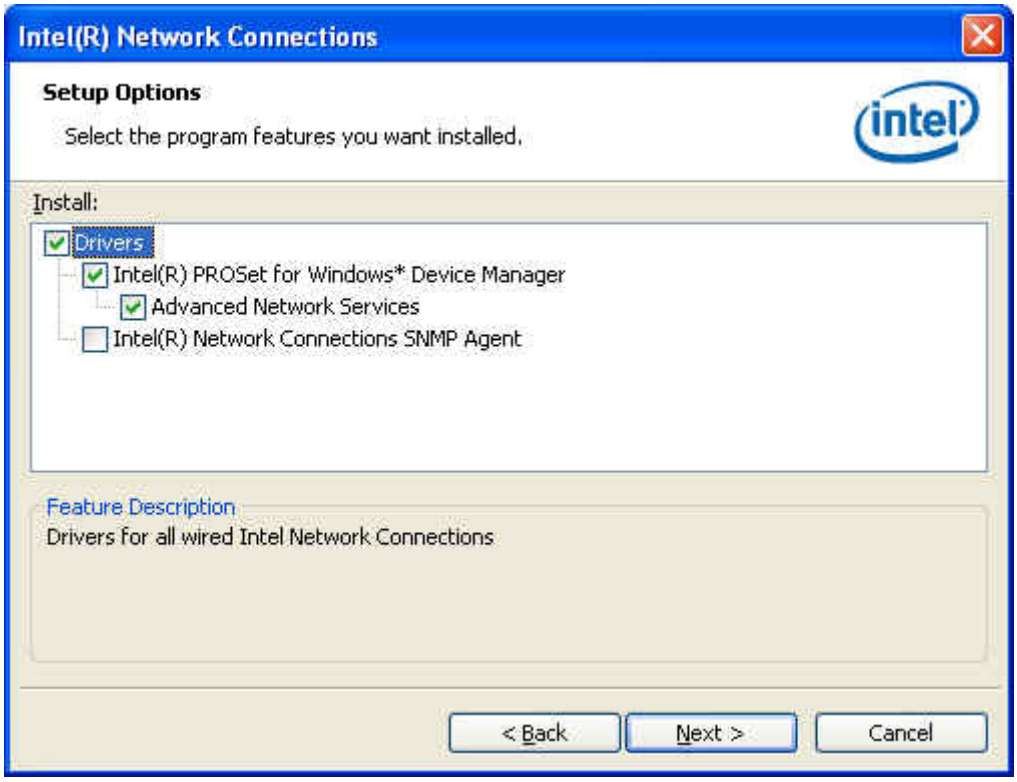
Step 1. Click “Next” to continue


Intel(R) Network Connections - InstallShield Wizard
Welcome to the InstallShield Wizard for Intel(R) Network Connections
Installs drivers, Intel(R) PROSet for Windows* Device Manager, and Advanced Networking Services.
WARNING: This program is protected by copyright law and international treaties.
InstallShield
< Back
Next >
Cancel

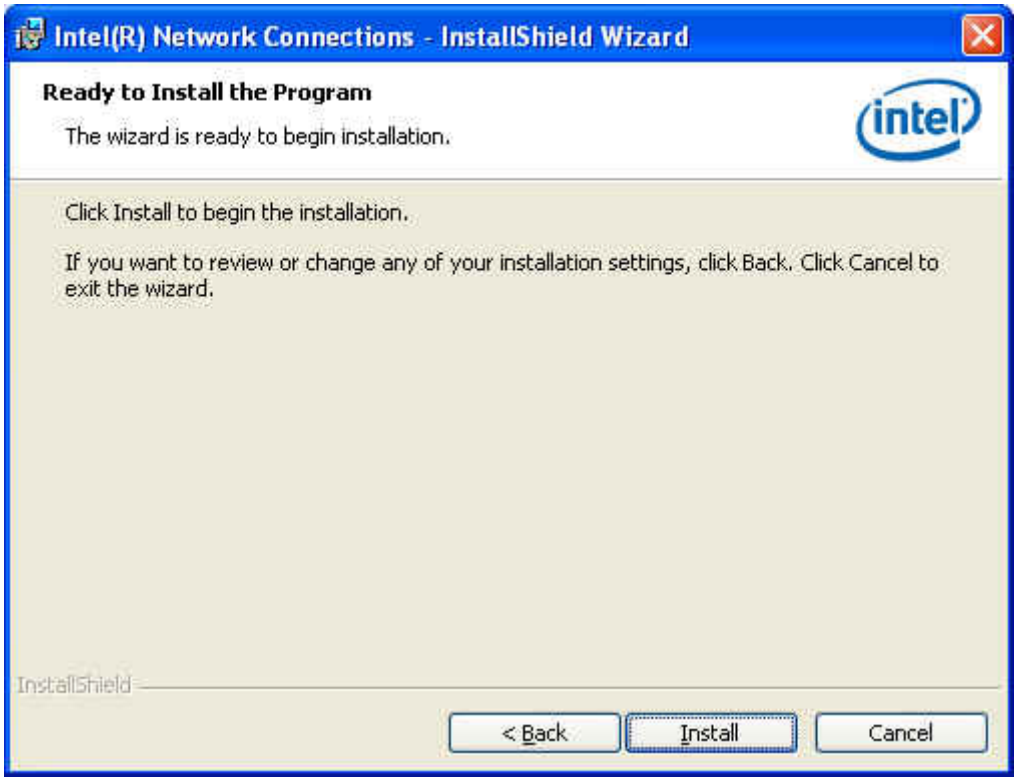
Step 2. Click “Next” to continue


Intel(R) Network Connections - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
INTEL SOFTWARE LICENSE AGREEMENT (Final, License)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the “Software”) until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
LICENSES: Please Note:
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

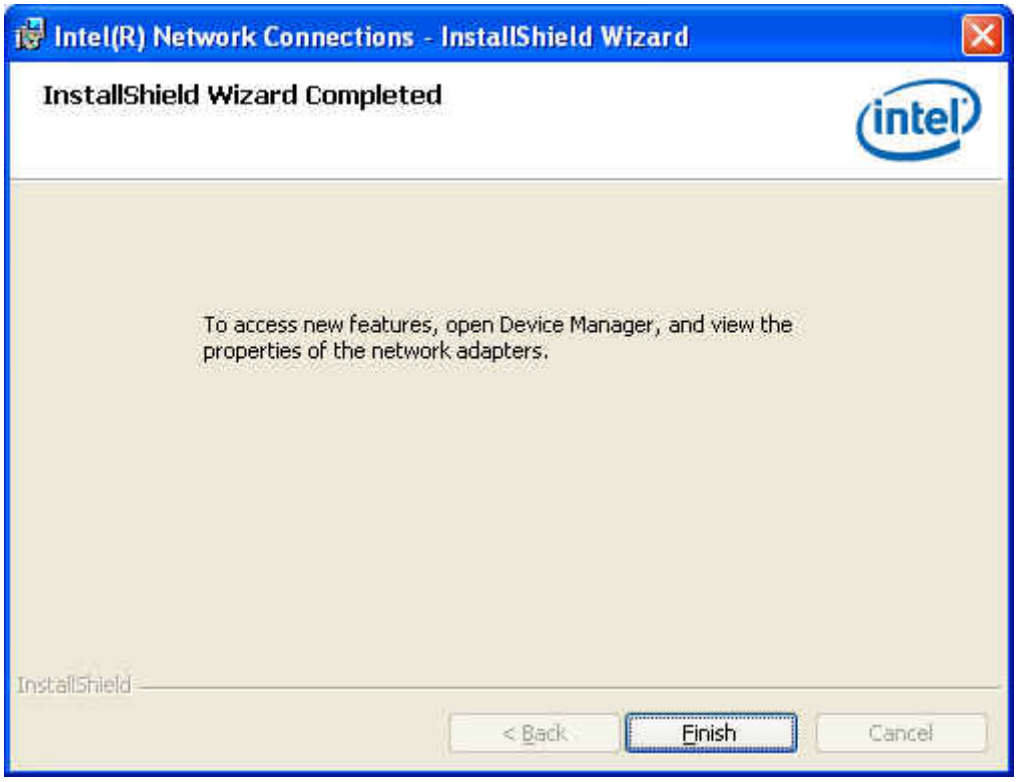
Step 3. Click “Next” to continue



Step 4. Click “Install” to continue

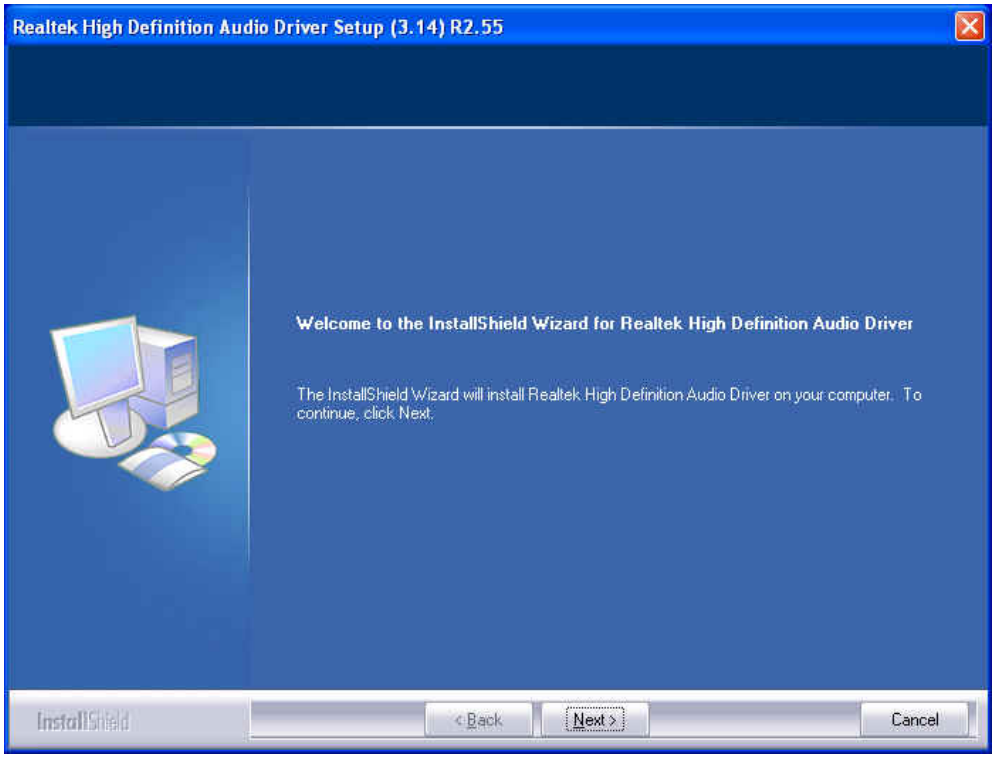

Intel(R) Network Connections - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Step 5. Click “Finish” to complete setup.

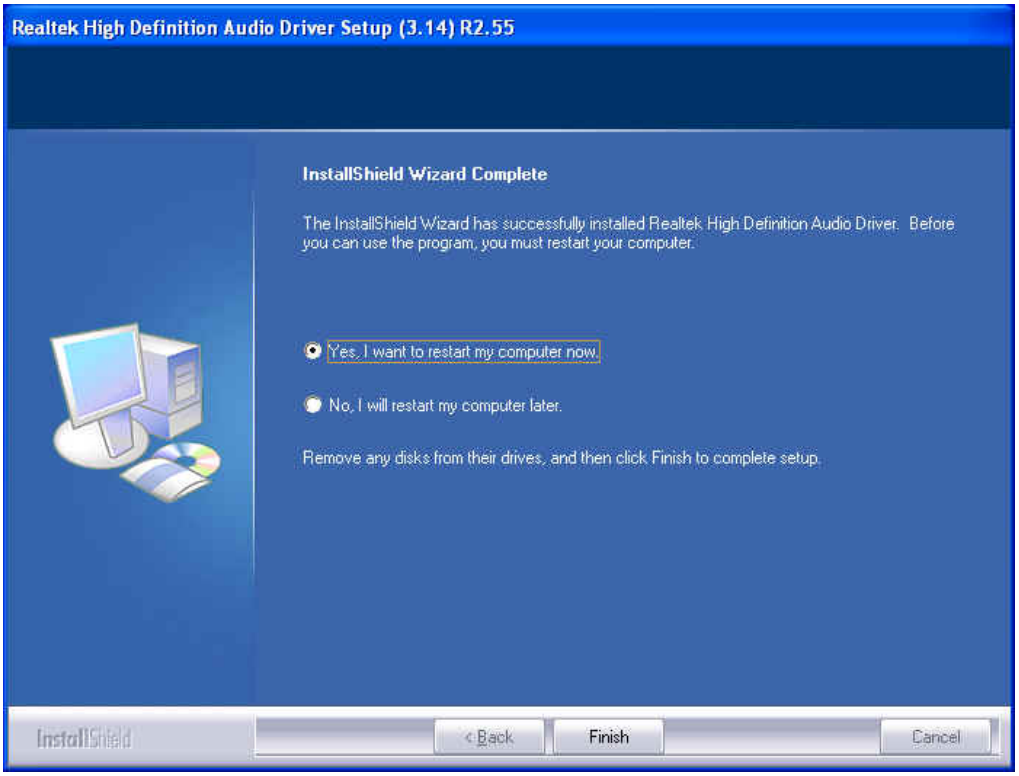


3.5 Audio Driver

Step 1. Click “Next” to continue


Realtek High Definition Audio Driver Setup (3.14) R2.55
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Step 2. Click “Finish” to complete setup.


Realtek High Definition Audio Driver Setup (3.14) R2.55
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Appendix-A Watchdog

The working algorithm of the WDT function can be simply described as a counting process. The Time-Out Interval can be set through software programming. The availability of the time-out interval settings by software.

The System Board allows users control WDT through dynamic software programming. The WDT starts counting when it is activated. It sends out a signal to system reset, when time-out interval ends. To prevent the time-out interval from running out, a re-trigger signal will need to be sent before the counting reaches its end. This action will restart the counting process.

WDT program should keep the counting process running under normal condition. WDT should never generate a system reset unless the system runs into troubles.

The related Control Registers of WDT are all included in the following sample program that is written in C language. User can fill a non-zero value into the Time-out Value Register to enable/refresh WDT. System will be reset after the Time-out Value to be counted down to zero. Or user can directly fill a zero value into Time-out Value Register to disable WDT immediately.

To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

For more information about WDT, please refer to Winbond W83627EHF data sheet.

There are two PnP I/O port addresses that can be used to configure WDT,

1) 0x2E:EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F:EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of WDT.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin 77 to be a WDTO# Signal
outp(0x002E, 0x2D);
outp(0x002F, inp(0x002F) & 0xFE);

// Select Logic Device 8
outp(0x002E, 0x07);
outp(0x002F, 0x08);

// Active Logic Device 8
outp(0x002E, 0x30);
outp(0x002F, 0x01);

//Clear WDTO# Status
outp(0x002E, 0xF7);
outp(0x002F, inp(0x2F) & 0xEF);

// Select Count Mode (Second / Minute)
outp(0x002E, 0xF5);
outp(0x002F, (inp(0x002F) & 0xF7) | ( Count-mode Register  & 0x08));

// Set Time-out Value
outp(0x002E, 0xF6);
outp(0x002F,  Time-out Value Register );

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Value of Count-mode Register:

1) 0x00 -- Count down in seconds (Bit3=0)
2) 0x08 -- Count down in minutes (Bit3=1)

Value of Time-out Value Register:

1) 0x00 -- Time-out Disable
2) 0x01~0xFF -- Value for counting down

Appendix-B GPIO

The System Board provides 4 dedicated output ports and 4 programmable I/O ports that can be individually configured to perform a simple I/O function. Users can configure 4 programmable I/O ports to become an input or output port by programming register bit of I/O Selection .*To invert port value, the setting of Inversion Register has to be made*(Note). Port values can be set to read or write through Data Register.

Note : Only 4 programmable I/O ports support.

Additionally, 4 Digital Output ports amplified signals from GPIO ports. There are open-drain buffers, which can offer greater driving capacity up to 100mA.

For more information about GPIO, please refer to Winbond W83627EHF data sheet.

The related Control Registers of GPIO are all included in the following sample program that is written in C language. To ensure a successful accessing to the content of desired Control Register, the sequence of following program codes should be step-by-step run again when each register is accessed.

There are two PnP I/O port addresses that can be used to configure GPIO ports,

1) 0x2E - EFER (Extended Function Enable Register, for entering Extended Function Mode)
   - EFIR (Extended Function Index Register, for identifying CR index number)

2) 0x2F - EFDR (Extended Function Data Register, for accessing desired CR)

Below are some example codes, which demonstrate the use of GPIOs.

```
// Enter Extended Function Mode
outp(0x002E, 0x87);
outp(0x002E, 0x87);

// Assign Pin121-128 to be GPIO port
outp(0x002E, 0x29);
outp(0x002F, inp(0x002F) | 0x01);
```

```
// Select Logic Device 7
outp(0x002E, 0x07);
outp(0x002F, 0x07);

// Active Logic Device 7
outp(0x002E, 0x30);
outp(0x002F, 0x01);

// Select Inversion Mode
outp(0x002E, 0xF2);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Inversion Register  & 0xC3));

// Select I/O Mode
outp(0x002E, 0xF0);
outp(0x002F, (inp(0x002F) & 0x3C) | ( I/O Selection Register  & 0xC3));

// Access GPIO ports
outp(0x002E, 0xF1);
outp(0x002F, (inp(0x002F) & 0x3C) | ( Output Data  & 0xC3));
or
 Input Data  = inp(0x002F);

// Exit Extended Function Mode
outp(0x002E, 0xAA);
```

Definitions of Variables:

Each bit in the lower nibble of each Register represents the setting of a GPIO port.

Super IO Pin	Bit	GPIO DIO
128	0	GPIO DIO-Out0
127	1	GPIO DIO-Out1
126	2	GPIO DIO-In0
125	3	GPIO DIO-In1
124	4	GPIO DIO-In2
123	5	GPIO DIO-In3
122	6	GPIO DIO-Out2
121	7	GPIO DIO-Out3

Value of Inversion Register:
When set to a ‘1’, the incoming/outgoing port value is inverted.
When set to a ‘0’, the incoming/outgoing port value is the same as in Data Register.

Value of I/O Selection Register:
When set to a ‘1’, respective GPIO port is programmed as an input port.
When set to a ‘0’, respective GPIO port is programmed as an output port.

Value of Output Data / Input Data:
If a port is assigned to be an output port, then its respective bit can be read/written.
If a port is assigned to be an input port, then its respective bit can be read only.

Note :
DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as **Inputs** by BIOS default.

Parameter	Conditions
VinH	min +1.857V
VinL	max +0.525V
Rated Vin	-8V ~ +12V
NC Status	High by Default

** Attention : If **DIO_IN0/DIO_IN1/DIO_IN2/DIO_IN3 are programmed as Output signal, they can only offer a normal signal transfer.(NOT amplified signals.)**

Parameter	Conditions
VoutH	3.3V thru 10k
VoutL	0V thru 1k

DIO_OUT0/DIO_OUT1/DIO_OUT2/DIO_OUT3 are fixed as **Outputs** by BIOS.

Parameter	Conditions
Open-drain buffer	Power-on default = Open
Driving Capacity	max 100mA continue